STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF RESOURCES PLANNING

Bulletin No. 65-59
QUALITY OF SURFACE WATERS
IN CALIFORNIA
1959

PART I
NORTHERN AND CENTRAL CALIFORNIA

Edmund G. Brown
Governor

William E. Warne
Director of Water Resources

July 1961

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF RESOURCES PLANNING

Bulletin No. 65-59
QUALITY OF SURFACE WATERS
IN CALIFORNIA
1959

PART I
NORTHERN AND CENTRAL CALIFORNIA

Edmund G. Brown
Governor

William E. Warne
Director of Water Resources

July 1961

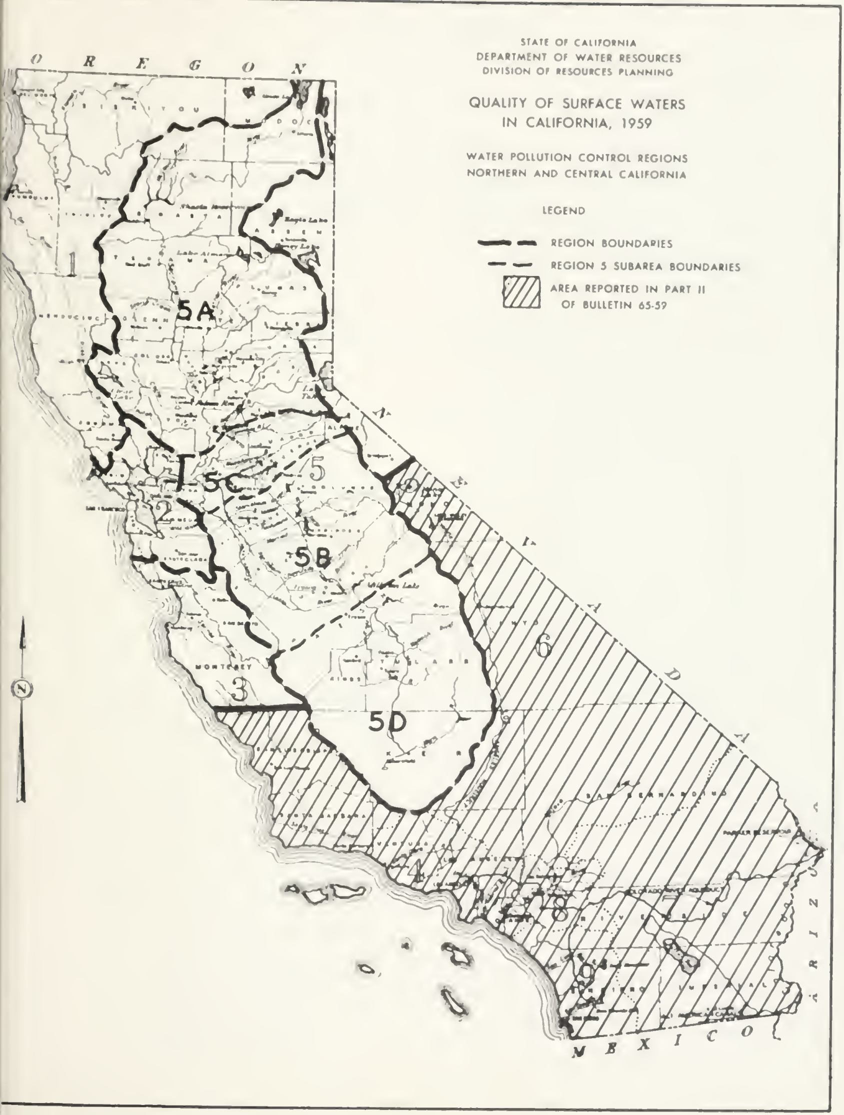

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF RESOURCES PLANNING
QUALITY OF SURFACE WATERS
IN CALIFORNIA, 1959
WATER POLLUTION CONTROL REGIONS
NORTHERN AND CENTRAL CALIFORNIA
LEGEND
REGION BOUNDARIES
REGION 5 SUBAREA BOUNDARIES
AREA REPORTED IN PART II
OF BULLETIN 65-59
OREGON
NEVADA
MEXICO
ARIZONA
1
2
3
4
5
5A
5B
5C
5D
6
8
9
N

TABLE OF CONTENTS

Page

PLATES

APPENDIXES

WILLIAM E. WARNE
DIRECTOR

EDMUND G. BROWN
GOVERNOR

ADDRESS REPLY
P. O. BOX 388 SAC
1120 N STREET HI CH

STATE OF CALIFORNIA
Department of Water Resources
SACRAMENTO
JUL 1 0 196(

Honorable Edmund G. Brown, Governor,
and Members of the Legislature of
the State of California

Water Pollution Control Boards

Gentlemen:

I have the honor to transmit Bulletin No. 65-59, entitled "Quality of Surface Waters in California, 1959, Part I, Northern and Central California". The period January through December 1959 is covered in this fifth volume of a continuing chronological series on quality of surface waters in California. Surface waters in Northern and Central California are discussed in Part I; Southern California surface water quality will be reported in Part II.

At the request of the State Water Pollution Control Board, a statewide surface water monitoring program was commenced in April 1951. As authorized by Section 229 of the Water Code, the Department of Water Resources has administered this program in cooperation with the State Department of Public Health, Bureau of Sanitary Engineering; the State Department of Fish and Game; the United States Geological Survey; and various other agencies and individuals. Under the statewide program samples from 210 stations, located on 143 different water sources, are collected and analyzed monthly to maintain surveillance on quality of surface waters in California. This volume reports the results of monitoring at 178 of these stations, located on 110 streams and lakes, in Northern and Central California.

During 1959 quality of surface waters in Northern and Central California was generally excellent, with only insignificant changes from previous years. During late summer and fall, the lower San Joaquin River and the Sacramento-San Joaquin Delta contained water with mineral concentrations which were the maximum of record. The high mineral concentrations often caused the water to be classed as poor in quality. The poor quality water was attributed to low flows, resulting from below normal precipitation, which afforded only minor dilution to poor quality drainage and effluent ground waters entering the lower reach of the river and the delta.

Part II of this bulletin, which will include an evaluation of surface water quality conditions in Southern California, will be published at a later date.

Sincerely yours,

William E. Warne

Director

ORGANIZATION

DEPARTMENT OF WATER RESOURCES
DIVISION OF RESOURCES PLANNING

William E. Warne . . . . Director of Water Resources

James F. Wright . . . . Chief Deputy Director

Alfred R. Golze' . . . . Chief Engineer

William L. Berry . . . . Chief Engineer, Division of Resources Planning

Irvin M. Ingerson . . . . Chief, Engineering Services Branch

----

The activities in Northern California covered by this report and the preparation of this report were under the direction of

Meyer Kramsky . . . . Principal Engineer, Water Resources

----

Supervisor of activities in Northern California covered by this report was

Willard R. Slater . . . . Supervising Engineer, Water Resources

This report was prepared by

Wayne S. Gentry . . . . Associate Engineer, Water Resources
James M. Windsor . . . . Assistant Civil Engineer

Assisted by

Curtis J. Peterson . . . . Junior Civil Engineer
Edwin E. Crawford . . . . Civil Engineering Technician
Harlan Proctor . . . . Engineering Aid II
James K. Eberly . . . . Engineering Aid II

ORGANIZATION

CALIFORNIA WATER COMMISSION

William H. Jennings, Chairman

Ralph M. Brody	George C. Fleharty
John W. Bryant	John J. King
John P. Bunker	Samuel B. Morris
Ira J. Chrisman	Marion R. Walker

- - - - - - - - -

William M. Carah
Executive Secretary

George B. Gleason
Chief Engineer

ACKNOWLEDGMENTS

The extensive coverage of the statewide surface water monitoring program is made possible through cooperation of federal, state and local agencies. The helpful cooperation of the following agencies is gratefully acknowledged:

<u>Federal Agencies</u>

Department of the Army

Corps of Engineers

Department of the Interior

Bureau of Reclamation

Geological Survey

Department of Health, Education and Welfare

Public Health Service

<u>State Agencies</u>

California Disaster Office, Radiological Service

Department of Fish and Game

Department of Public Health

Bureau of Sanitary Engineering

Division of Laboratories

State Water Pollution Control Board

<u>Other Public Agencies</u>

City and County of San Francisco

Kern County Land Company

Kings River Water Association

The Department of Water Resources wishes to especially thank the following federal and state agencies who granted permission for inclusion in this report of unpublished water quality data collected under various programs:

United States Department of the Interior

Bureau of Reclamation

Geological Survey

Central Valley Regional Water Pollution Control Board (No. 5)

In addition, the United States Geological Survey performed a substantial portion of the analyses required by this program under a cooperative agreement with the Department of Water Resources. The bacteriological determinations were made by the California State Department of Public Health and the radiological determinations by the California Disaster Office under provisions of an agreement with the State Water Pollution Control Board.

INTRODUCTION

Bulletin No. 65-59 is the fifth volume in a series on surface water quality conditions in California. Data presented were collected by the Department of Water Resources' surface water monitoring program and other public agencies in California. In addition to basic data, this bulletin contains evaluations and interpretations of significant quality variations detected during 1959 and, where possible, an explanation of the causes of these variations.

To disseminate quality data as soon as practicable, the department also publishes, and distributes a monthly report containing data and preliminary evaluations of detected quality variations. These reports are distributed to pollution control, public health, and other agencies and individuals.

An abundant and usable source of water is an essential commodity in man's present environment. To insure that California's rapidly expanding economy and increasing population are provided with a usable supply of water an effective surveillance program must be maintained. The early detection and control of quality impairment is necessary, in order to insure the fullest beneficial use of the State's water resources. Realizing the need for a detection system, the State of California initiated a statewide surface water monitoring program in April 1951. Since that time the monitoring program has been conducted by the Department of Water Resources in cooperation with numerous agencies and individuals. Other agencies have also maintained monitoring stations at various places throughout the State.

Part I of this bulletin presents water quality data and an evaluation of surface water quality conditions in Water Pollution Control Regions 1 and 2, the portion of Region 3 north of the San Antonio-Salinas River drainage boundary, Region 5, and the portion of Region 6 north of the Mono Lake drainage divide. Part II, to be published at a later date, will present data and an evaluation of surface water quality conditions in the southern portion of Region 3 (Santa Ynez, Santa Maria, Nacimiento, and San Antonio Rivers and the portion of Salinas River upstream from the confluence of San Antonio River), all of Region 4, Region 6 south of the northern Mono Lake drainage boundary and all of Regions 7, 8 and 9. The regions and the areas reported on in this volume are shown on the frontispiece map.

The 1959 stream sampling programs reported herein comprised the collection of water samples and analyses from 178 stations on 110 streams and lakes throughout Northern and Central California. Previous quality monitoring data are included in the following report and bulletins:

California Department of Public Works, Division of Water Resources, Water Quality Investigations, Report No. 15, "Quality of Surface Waters in California, 1951-1954"

California Department of Water Resources, Division of Resources Planning, Bulletin No. 65, "Quality of Surface Waters in California, 1955-1956"

----. Bulletin No. 65-57, "Quality of Surface Waters in California, 1957"

----. Bulletin No. 65-58, "Quality of Surface Waters in California, 1958"

The activities of the department's surface water monitoring program are authorized by Section 229 of the Water Code, which directs that:

"The department, . . . shall investigate conditions of the quality of all waters within the State, including saline waters, coastal and inland, as related to all sources of pollution of whatever nature and shall report thereon to the Legislature and to the appropriate regional water pollution control board annually, and may recommend any steps which might be taken to improve or protect the quality of such waters."

The basic objectives of the department's surface water quality monitoring program are:

(a) to secure continuous and reliable water quality data, on a monthly basis, from a network of stations which will provide representative data pertaining to the quality of water in the major surface streams and lakes of the State;

(b) to evaluate and interpret chemical, physical, biological and radiological information collected during the course of the program to develop a comprehensive understanding of the factors which make up and alter the water quality at any station; and

(c) to detect changes in water quality and to notify the appropriate control agency, (regional water pollution control boards, state and local health departments, State Department of Fish and Game) when warranted.

The discussion of water quality data collected by the Department of Water Resources' surface water monitoring program is presented in this bulletin, in successive order, by water pollution control regions which are numbered and named substantially in accordance with the major surface drainage basins with which they are coterminous (see Frontispiece). For convenience in presentation, the Central Valley Region (No. 5), has been divided into four separate areas, 5a, 5b, 5c, and 5d. Area 5a embraces the Sacramento Valley, 5b the San Joaquin Valley, 5c the Sacramento-San Joaquin Delta, and 5d the Tulare Lake Basin. Within each region, the discussion is presented by basins or stream groups. In each basin or stream group, the main stream is discussed first, followed by a discussion and summary of data, in downstream order, of all monitoring stations. The discussion for each monitoring station includes a detailed location description of the sampling point, period of quality record, a detailed discussion of water quality characteristics, and an analysis of significant water quality changes in 1959. For each station a presentation is given for the maximum and minimum concentrations of the mineral constituents in the water for the total period of record and for 1959; curves depicting the monthly variation, for the period of record, of stream flow, specific conductance, and, where applicable, pertinent problem mineral constituent concentrations.

Following the discussion and analysis of the Department of Water Resources monitoring program, a listing of water quality monitoring stations maintained by other agencies during 1959 is presented. This listing includes the name and number of the station, a description of the sampling point, the agency responsible for the station operation, and where known, the period of water quality record. No attempt is made in this bulletin to present an evaluation of quality monitoring data collected by other agencies.

Results of bacteriological and radiological determinations presented in this bulletin should be considered as only qualitative indicators and undue weight should not be given to quantitative values. The indicators contribute to long-term environmental studies.

Results of bacteriological examinations are expressed as the most probable number (MPN) of coliform bacteria per milliliter (ml) of sample. In view of the rapidity and frequency of change in the density of coliform organisms, frequent and lengthy sampling is necessary before a truly reliable evaluation can be made.

Results of radiological determinations are expressed in terms of activity, measured in micro-micro curies per liter ($\mu\mu c/l$). No well-defined limits have been established for maximum safe concentrations of unknown alpha and beta emitters in domestic water supplies. The International Commission on Radiological Protection has recommended provisional criteria for permissible concentrations of radioactivity in water. Even though evaluation criteria have been recommended by this commission, this bulletin does not attempt to evaluate the specific safety conditions. Pertinent features of these criteria are given in Appendix A.

Appendix A of this bulletin contains a discussion of field and laboratory procedures and methods, and the criteria utilized by the Department of Water Resources in evaluating the quality of water. Appendix B contains the physical, mineral, bacteriological and radiological data for samples collected during 1959.

SURFACE WATER QUALITY, DEPARTMENT OF WATER RESOURCES MONITORING PROGRAM

Summary

During 1959 quality of surface waters in Northern and Central California was generally excellent, with only insignificant changes from previous years. During late summer and fall, the lower San Joaquin River and the Sacramento-San Joaquin Delta contained water with mineral concentrations which were the maximum of record. The high mineral concentrations often caused the water to be classed as poor in quality. The poor quality water was attributed to low flows, resulting from below normal precipitation, which afforded only minor dilution to poor quality drainage and effluent ground waters entering the lower reach of the rivers and the delta.

North Coastal Region (No. 1)

The North Coastal Region extends southward from the Oregon border 270 miles, to the northern boundary of Lagunitas Creek Basin in Marin County, and ranges in width from 180 miles at the Oregon boundary to 30 miles in the southern portion.

Terrain of this region is largely mountainous, with cliffs often several hundred feet high along the coast line, and steep canyons and numerous ridges with many peaks inland. Valley and mesa land, easily adaptable to agricultural development, comprises about 15 percent of the 19,586 square miles in this region. A fairly thick absorptive soil mantle covers much of the area and helps sustain stream flow through drier portions of the year.

Natural mean seasonal surface runoff is estimated to exceed 28,800,000 acre-feet. Principal hydrographic units in this region include the drainage basins of the Smith, Klamath, Mad, Eel, and Russian Rivers. Thirty-two sampling stations shown on Plate 1, "Surface Water Monitoring Program Stream Sampling Stations North Coastal Region (No. 1)", are being monitored to obtain information and to provide a continuing check on the quality of surface water resources in the North Coastal Region. Monitored streams are listed below with the number of sampling stations along each in parentheses.

Klamath River (5)
Antelope Creek (1)
Butte Creek (1)
Shasta River (1)
Scott River (1)
Salmon River (1)
Trinity River (3)
Smith River (1)
Redwood Creek (1)
Mad River (1)
Eel River (3)
Outlet Creek (1)
Eel River, Middle Fork (1)
Eel River, South Fork (1)
Van Duzen River (1)
Mattole River (1)
Noyo River (1)
Big River (1)
Navarro River (1)
Gualala River (1)
Russian River (3)
Russian River, East Fork (1)

A review of quality data revealed surface water in the northern portion of this region to be predominantly calcium-magnesium bicarbonate, while streams in the remaining portions were generally calcium bicarbonate in character. Excellent quality water for all but the most exacting requirements is found in North Coastal streams. During 1959 there was no appreciable change in the mineral quality of streams in the North Coastal Region.

Klamath River Basin

The California portion of the Klamath River Basin is located in the northern section and comprises over one-half the North Coastal Area. The watershed includes all tributaries downstream from the boundary between Oregon and California as well as those portions of Butte Valley (a basin of interior drainage), Lost River and Tule Lake Basins that lie in California. The Klamath's main tributaries in California are Trinity, Salmon, Scott, Shasta, and Lost Rivers. The Klamath River Basin encompasses 15,715 square miles of which approximately 10,020 square miles are in California. The average seasonal flow of the Klamath River into the Pacific Ocean is about 12,500,000 acre-feet.

Land classification surveys indicate approximately 405,000 acres of land in this basin are irrigable of which 182,000 acres are presently irrigated. The approximately 6,000,000 remaining acres are comprised of a series of mountain ranges separated by long, narrow river valleys. The mountainous areas and undeveloped valley lands are used extensively for livestock range, timber production, mining, and recreation. Support of fish and wildlife is of major importance to the welfare of this basin.

Numerous lumbermill operations and small communities discharge waste into the Klamath River. Most of these wastes are minor in quantity and do not result in a discernible quality impairment problem. Irrigation return causes some mineral impairment of tributaries to Klamath River; however, the overall effect is not significant.

Thirteen surface water monitoring stations are located in the Klamath River Basin. The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed.

KLAMATH RIVER NEAR COPCO (STA. 1)

Sampling Point The monitoring station is located in Section 36 of Township 48 North, Range 5 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank at the USGS gage 1 mile downstream from Copco No. 2 power plant of the California-Oregon Power Company, 500 feet downstream from Fall Creek.

Period of Record April 1951 through December 1959.

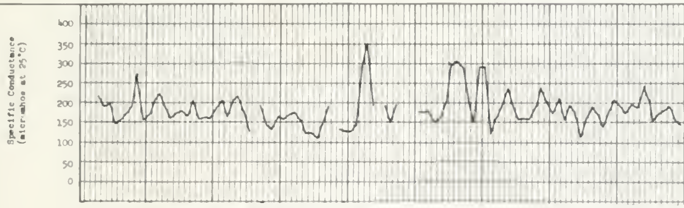
Water Quality Characteristics Klamath River near Copco is excellent, a bicarbonate type with sodium as its most predominant cation, class 1 for irrigation, soft to slightly hard, and meets drinking water standards for mineral content.

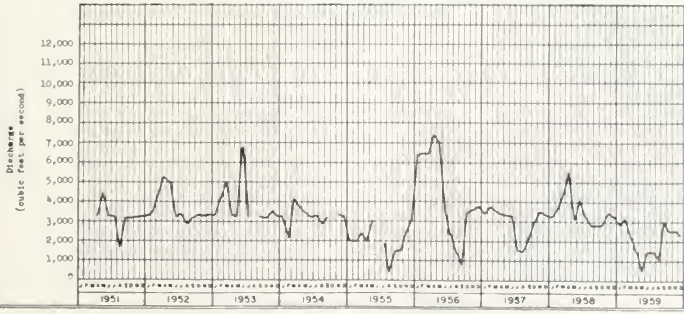
Significant Water Quality Changes Concentrations of dissolved oxygen were generally lower throughout 1959 with the minimum of record, 4.7 ppm, being reported in June. This apparent deoxygenation of the river was possibly caused by algal bloom die-off, resulting in an increased B.O.D. along this reach.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	121	[illegible]	[illegible]
Temperature in °F	74	[illegible]	7[illegible]	[illegible]9
Dissolved oxygen in parts per million	11.4	[illegible].7	8.2	4.7
Percent saturation	111	[illegible]9	77	[illegible]9
pH	8.2	6.[illegible]	7.8	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	25	5.1	13	10
Magnesium (Mg)	13	3.6	10	6.1
Sodium (Na)	29	6.9	2[illegible]	12
Potassium (K)	4.[illegible]	1.3	[illegible]	2.[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	112	54	98	72
Sulfate (SO_4)	50	8.[illegible]	29	8.[illegible]
Chloride (Cl)	9.[illegible]	0.0	9.[illegible]	2.8
Nitrate (NO_3)	5.4	1.2	3.[illegible]	1.2
Fluoride (F)	0.6	0.0	0.3	[illegible].2
Boron (B)	0.30	0.0	[illegible].1	0.0
Silica (SiO_2)	42	5.3	[illegible]1	22
Total dissolved solids in parts per million	250	84	153	104
Percent sodium	55	19	41	26
Hardness as $CaCO_3$ in parts per million				
Total	115	18	74	49
Noncarbonate	28	[illegible]	3	0.0
Turbidity	50	[illegible]	20	0.0
Coliform in most probable number per milliliter	>7,000.	[illegible].13	7,000.	[illegible].28
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.90	[illegible]	0.90	[illegible].00
Solid alpha	0.52	0.00	0.37	0.36
Dissolved beta	22.9	[illegible].00	7.93	6.18
Solid beta	[illegible].9	0.00	2.05	0.79

WATER QUALITY VARIATIONS





KLAMATH RIVER NEAR COPCO (STA. 1)

KLAMATH RIVER ABOVE HAMBURG RESERVOIR SITE (STA. 1c)

Sampling Point Klamath River monitoring Station 1c is located in Section 14 of Township 46 North, Range 10 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from a bridge on State Highway 96, in the center of the channel of flow, about 6 miles upstream from the mouth of Scott River, about 7 miles northeast of the town of Hamburg.

Period of Record December 1958 through December 1959.

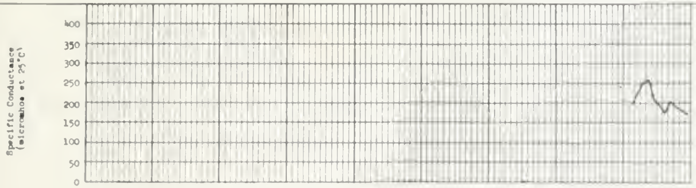
Water Quality Characteristics Mineral classification of analyses of samples from this station show the water to be a bicarbonate type with no major cation. Qualitatively, this river is class 1 for irrigation, soft to slightly hard, and meets drinking water standards for mineral content. The concentration of most mineral constituents in Klamath River between Station 1 near Copco and Station 1c are fairly comparable. Based upon limited data, it appears that the Shasta River at times may slightly degrade water quality of the Klamath in the reach immediately above Station 1c.

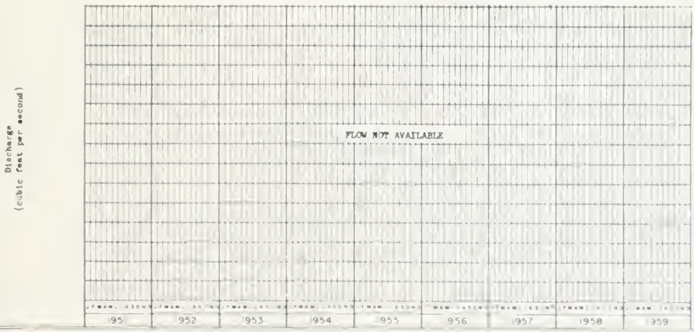
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See 1959	See 1959	259	170
Temperature in °F			74	39
Dissolved oxygen in parts per million			12.3	7.7
Percent saturation			108	86
pH			7.9	7.4
Mineral constituents in parts per million				
Calcium (Ca)			19	12
Magnesium (Mg)			10	6.6
Sodium (Na)			20	12
Potassium (K)			3.9	1.6
Carbonate (CO_3)			[illegible]	0.0
Bicarbonate (HCO_3)			117	85
Sulfate (SO_4)			31	5.0
Chloride (Cl)			12	5.0
Nitrate (NO_3)			3.0	0.0
Fluoride (F)			0.2	0.0
Boron (B)			0.2	0.1
Silica (SiO_2)			42	19
Total dissolved solids in parts per million			168	125
Percent sodium			35	26
Hardness as $CaCO_3$ in parts per million				
Total			88	57
Noncarbonate			4	0.0
Turbidity (Not Measured)				
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha			0.10	0.00
Solid alpha			0.27	0.00
Dissolved beta			8.95	3.59
Solid beta			[illegible]	1.74

WATER QUALITY VARIATIONS





KLAMATH RIVER ABOVE HAMBURG RESERVOIR SITE (STA. 1c)

KLAMATH RIVER NEAR SEIAD VALLEY (STA. 2b)

Sampling Point Station 2b is located in Section 3 of Township 46 North, Range 12 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected at mid-depth, from the right bank, at the USGS gaging station, 0.4 mile upstream from Bittenbender Creek, about 14 miles downstream from the mouth of Scott River, and 2.2 miles west of the town of Seiad Valley.

Period of Record December 1958 through December 1959.

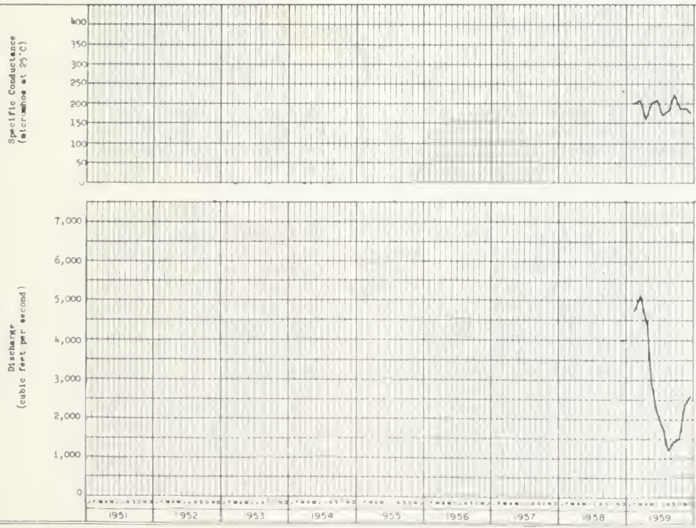
Water Quality Characteristics Since inception of monitoring of the Klamath River at this station, the water has been excellent in quality, calcium-magnesium bicarbonate in character, class 1 for irrigation, slightly hard, and has met drinking water standards for mineral content. There is normally no significant difference between the mineral content of the Klamath River at this station and above Hamburg Reservoir Site (Station 1c). However, it is noted that during periods of high inflow from the Scott River, the major tributary to the Klamath River between Stations 1c and 2b, regardless of flow conditions on the Klamath, a significant decrease in the mineral content of the Klamath River occurs. This condition was shown by conductivity values in April 1959, which decreased from approximately 250 micromhos at Station 1c to approximately 160 micromhos at Station 2b. This phenomenon indicates mineral content of Scott River is sufficiently low to more than offset the degradation of Klamath River caused by Shasta River.

Significant Water Quality Changes The maximum radioactivity found in the Klamath River Basin during 1959 was the 35.3 μμc/1 total activity recorded at Station 2b in May. The activity decreased appreciably during the year to 8.3 μμc/1 (micro-micro curies per liter) in September.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See [illegible]	See [illegible]	224	[illegible]
Temperature in °F			[illegible]	[illegible]
Dissolved oxygen in parts per million			[illegible]	[illegible]
Percent saturation			[illegible]	[illegible]
pH			[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			[illegible]	[illegible]
Magnesium (Mg)			[illegible]	[illegible]
Sodium (Na)			[illegible]	[illegible]
Potassium (K)			3.8	[illegible]
Carbonate (CO_3)			4	[illegible]
Bicarbonate (HCO_3)			118	[illegible]
Sulfate (SO_4)			20	[illegible]
Chloride (Cl)			[illegible]	[illegible]
Nitrate (NO_3)			2.6	[illegible]
Fluoride (F)			[illegible]	[illegible]
Boron (B)			0.2	[illegible]
Silica (SiO_2)			40	[illegible]
Total dissolved solids in parts per million			166	100
Percent sodium			37	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total			90	[illegible]
Noncarbonate			8	[illegible]
Turbidity (Not Measured)				
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha			0.20	[illegible]
Solid alpha			0.56	[illegible]
Dissolved beta			15.01	[illegible]
Solid beta			[illegible]	0.00

WATER QUALITY VARIATIONS



KLAMATH RIVER NEAR SEIAD VALLEY (STA. 2b)

KLAMATH RIVER AT SOMESBAR (STA. 2)

Sampling Point The Somesbar station is located on the Klamath River in Section 4 of Township 11 North, Range 6 East, Humboldt Base and Meridian. Monthly grab samples were collected at mid-depth, from the left bank, 100 feet downstream from the USGS gage, 1 mile west of Somesbar post office and 300 feet downstream from Salmon River.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Since inception of the monitoring program, flow in Klamath River at Station 2 has been excellent in quality, calcium-magnesium bicarbonate in character, class 1 for irrigation, with a range from soft to slightly hard and has consistently met drinking water standards for mineral content. Review of data reveals a general improvement, averaging about 30 micromhos, in the mineral quality of Klamath River flow between Station 2b above Hamburg Reservoir Site and Station 2. This improvement is attributed to dilution by better quality tributary waters between the two stations.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	289	93.3	208	108
Temperature in °F	81	39	78	41
Dissolved oxygen in parts per million	14.2	7.2	13.3	8.[illegible]
Percent saturation	124	59	102	97
pH	8.8	6.3	8.[illegible]	7.3
Mineral constituents in parts per million				
Calcium (Ca)	23	9.2	17	13
Magnesium (Mg)	[illegible]	2.6	8.1	7.2
Sodium (Na)	22	1.8	[illegible]	1.9
Potassium (K)	3.4	0.7	2.3	0.9
Carbonate (CO_3)	2	0.0	2	[illegible]
Bicarbonate (HCO_3)	124	50	[illegible]	66
Sulfate (SO_4)	35	3.5	11	8.6
Chloride (Cl)	9.0	0.0	6.2	2.5
Nitrate (NO_3)	2.4	0.[illegible]	2.[illegible]	[illegible]
Fluoride (F)	0.4	0.0	0.2	[illegible]
Boron (B)	0.3	0.0	[illegible].2	[illegible]
Silica (SiO_2)	36	5.3	22	15
Total dissolved solids in parts per million	[illegible]	57	149	63
Percent sodium	34	[illegible]	34	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	98	38	86	[illegible]
Noncarbonate	18	0.[illegible]	9	[illegible]
Turbidity	300	0.0	700	[illegible]
Coliform in most probable number per milliliter	2,400	0.045	620	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.27	0.09	[illegible] 27	[illegible]
Solid alpha	0.72	0.00	[illegible] 36	[illegible]
Dissolved beta	13.30	0.00	3.54	[illegible]
Solid beta	22.5	[illegible] 00	12.85	[illegible]

WATER QUALITY VARIATIONS

KLAMATH RIVER AT SOMESBAR (STA. 2)

KLAMATH RIVER NEAR KLAMATH (STA. 3)

Sampling Point Station 3 is located in Section 17 of Township 13 North, Range 2 East, Humboldt Base and Meridian. Monthly grab samples were collected at mid-depth from the right bank at the USGS gaging station, about 6 miles upstream from the mouth, 3.3 miles east of Klamath (on Highway 101) and 0.4 mile upstream from Klamath Glen Road.

Period of Record April 1951 through December 1959.

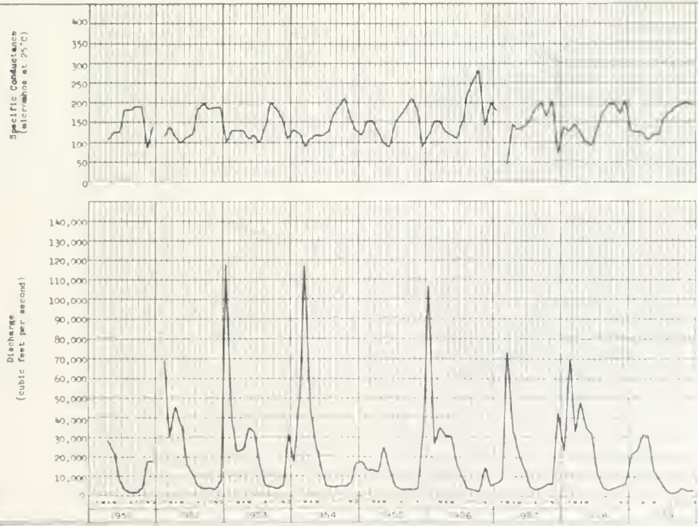
Water Quality Characteristics Antecedent data reveal Klamath River water, at this station, to be excellent in quality, calcium bicarbonate in character and class 1 for irrigation. It consistently ranges from soft to slightly hard and meets drinking water standards for mineral content. In past years, Klamath River water, due to tributary inflow, has consistently undergone a gradual change in character from bicarbonate type with no predominant cation at Station 1 (near Copco) to a generally calcium bicarbonate type water at Station 3 (near Klamath). A slight decrease in the concentration of constituents, on the order of 25 micromhos from the upstream station to the downstream station, has also been noted. Analyses of water samples collected from the Klamath River at Stations 1c and 2b disclose that the concentration of mineral constituents in the river normally increase to a maximum in the vicinity of these two stations. Mineral content again decreases, as tributary inflows dilute mineral concentration, to a minimum at Station 3.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	280	[illegible]	200	[illegible]
Temperature in °F	74	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	7.4	12.4	[illegible]
Percent saturation	118	81	[illegible]	[illegible]
pH	8.3	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	21	4.0	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	1.9	9.7	[illegible]
Sodium (Na)	[illegible]	2.6	12	[illegible]
Potassium (K)	[illegible]	[illegible]	2.2	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	130	18	[illegible]	[illegible]
Sulfate (SO_4)	29	[illegible]	[illegible]	[illegible]
Chloride (Cl)	16	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	1.5	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	29	5.7	25	[illegible]
Total dissolved solids in parts per million	182	30	131	[illegible]
Percent sodium	32	9	25	9
Hardness as $CaCO_3$ in parts per million				
Total	94	[illegible]	[illegible]	[illegible]
Noncarbonate	8	[illegible]	[illegible]	[illegible]
Turbidity	300	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	>7,000	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.24	0.00	[illegible]	[illegible]
Solid alpha	1.43	[illegible]	[illegible]	[illegible]
Dissolved beta	16.00	[illegible]	[illegible]	[illegible]
Solid beta	16.86	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS



KLAMATH RIVER NEAR KLAMATH (STA. 3)

ANTELOPE CREEK NEAR TENNANT (STA. 1e)

Sampling Point The station is located in Section 25 of Township 43 North, Range 1 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank. The sampling point is 4 miles downstream from Frog Lake, 17 miles southeast of the town of Mount Hebron, and 2.5 miles south of Tennant.

Period of Record March 1959 through December 1959.

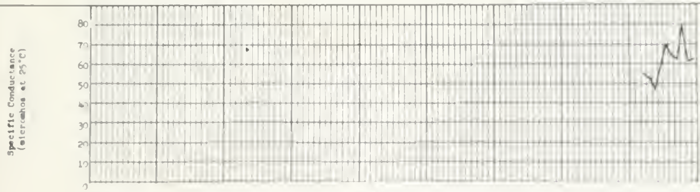
Water Quality Characteristics Past analyses of samples of Antelope Creek show it to be calcium bicarbonate in character, class 1 for irrigation, soft, and meets drinking water standards for mineral content.

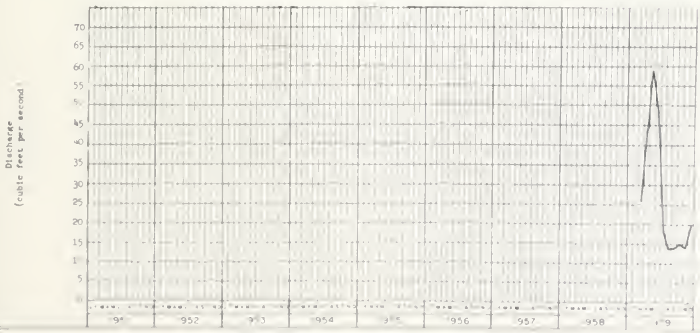
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See 1959	See 1959	[illegible]	46.8
Temperature in °F			60	32
Dissolved oxygen in parts per million			[illegible]	7.7
Percent saturation			97	73
pH			7.4	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			8.8	5.2
Magnesium (Mg)			3.9	1.7
Sodium (Na)			5.9	1.9
Potassium (K)			2.6	[illegible]
Carbonate (CO_3)			0.0	[illegible]
Bicarbonate (HCO_3)			47	23
Sulfate (SO_4)			[illegible]	1.0
Chloride (Cl)			6.0	0.5
Nitrate (NO_3)			[illegible]	[illegible]
Fluoride (F)			0.3	[illegible]
Boron (B)			0.0	[illegible]
Silica (SiO_2)			37	24
Total dissolved solids in parts per million			88	55
Percent sodium			28	13
Hardness as $CaCO_3$ in parts per million				
Total			36	20
Noncarbonate			7	[illegible]
Turbidity (Not Measured)				
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha			0.41	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			3.36	[illegible]
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS





ANTELOPE CREEK NEAR TENNANT (STA. 1e)

BUTTE CREEK NEAR MACDOEL (STA. 1d)

Sampling Point Station 1d is located in Section 30 of Township 45 North, Range 1 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank 7.5 miles downstream from Little Antelope Creek and 7 miles south of Macdoel.

Period of Record March 1959 through December 1959.

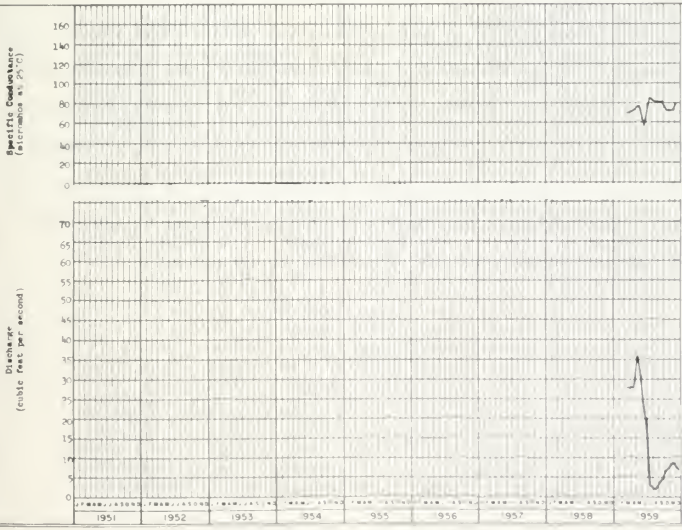
Water Quality Characteristics Samples of water from Butte Creek are a bicarbonate type with calcium and magnesium as major cations. This water is excellent in quality, class 1 for irrigation, soft, and has a mineral content within the limits for drinking water.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F			[illegible]	[illegible]
Dissolved oxygen in parts per million			[illegible]	[illegible]
Percent saturation			[illegible]	[illegible]
pH			[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			[illegible]	[illegible]
Magnesium (Mg)			[illegible]	[illegible]
Sodium (Na)			[illegible]	[illegible]
Potassium (K)			[illegible]	[illegible]
Carbonate (CO_3)			[illegible]	[illegible]
Bicarbonate (HCO_3)			[illegible]	[illegible]
Sulfate (SO_4)			[illegible]	[illegible]
Chloride (Cl)			[illegible]	[illegible]
Nitrate (NO_3)			[illegible]	[illegible]
Fluoride (F)			[illegible]	[illegible]
Boron (B)			[illegible]	[illegible]
Silica (SiO_2)			[illegible]	[illegible]
Total dissolved solids in parts per million			[illegible]	6[illegible]
Percent sodium			[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total			[illegible]	[illegible]
Noncarbonate			[illegible]	[illegible]
Turbidity: (Not Measured)				
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			[illegible]	[illegible]
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS



BUTTE CREEK NEAR MACDOEL (STA. 1d)

SHASTA RIVER NEAR YREKA (STA. 1a)

Sampling Point Station 1a is located in Section 24 of Township 46 North, Range 7 West, Mt. Diablo Base and Meridian. Monthly water samples were collected from the right bank 0.5 mile upstream from the mouth of the Shasta River and 7 miles north of Yreka.

Period of Record December 1958 through December 1959.

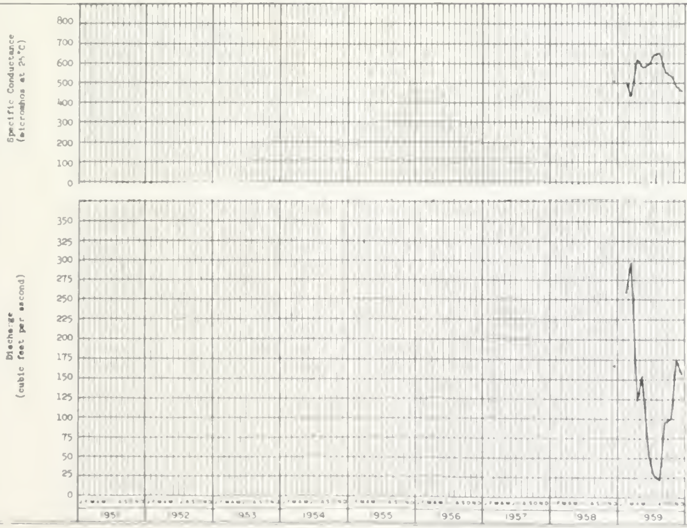
Water Quality Characteristics Since inception of a monitoring station on this river concentrations of mineral constituents, with the exception of boron, have been within the acceptable limits for nearly all beneficial uses. A good quality sodium-bicarbonate type water, moderate to very hard, is characteristic of samples from Shasta River. At times boron is detected in excess of 0.5 ppm, the upper limit for a class 1 irrigation water.

Significant Water Quality Changes During six months of 1959 boron exceeded 0.5 ppm in Shasta River. Boron in concentrations of this magnitude was generally characteristic of samples collected during late spring, the summer and early fall. The quantity of discharge in the river directly affected boron concentrations, with the lower flows being associated with higher concentrations. The source of boron in this river is believed to stem from irrigation return and mineralized spring waters.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F			[illegible]	[illegible]
Dissolved oxygen in parts per million			[illegible]	[illegible]
Percent saturation			[illegible]	[illegible]
pH			[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			[illegible]	24
Magnesium (Mg)			[illegible]	28
Sodium (Na)			[illegible]	[illegible]
Potassium (K)			[illegible]	[illegible]
Carbonate (CO_3)			[illegible]	[illegible]
Bicarbonate (HCO_3)			386	266
Sulfate (SO_4)			22	[illegible]
Chloride (Cl)			[illegible]	[illegible]
Nitrate (NO_3)			[illegible]	[illegible]
Fluoride (F)			[illegible]	[illegible]
Boron (B)			0.7	[illegible]
Silica (SiO_2)			62	[illegible]
Total dissolved solids in parts per million			435	287
Percent sodium			32	24
Hardness as $CaCO_3$ in parts per million				
Total			262	118
Noncarbonate			[illegible]	[illegible]
Turbidity			40	9
Coliform in most probable number per milliliter			[illegible]	6.2
Radioactivity in micro-micro curies per liter				
Dissolved alpha			0.30	0.00
Solid alpha			0.45	0.28
Dissolved beta			14.07	0.00
Solid beta			0.96	0.00

WATER QUALITY VARIATIONS



SHASTA RIVER NEAR YREKA (STA. 1a)

SCOTT RIVER NEAR FORT JONES (STA. 1b)

Sampling Point Scott River sampling station is located in Section 28 of Township 44 North, Range 10 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected at mid-depth, from the right bank, 150 feet south of the Fort Jones-Scotts Bar road, about 20 miles upstream from the mouth and 10.5 miles downstream from Fort Jones.

Period of Record December 1958 through December 1959.

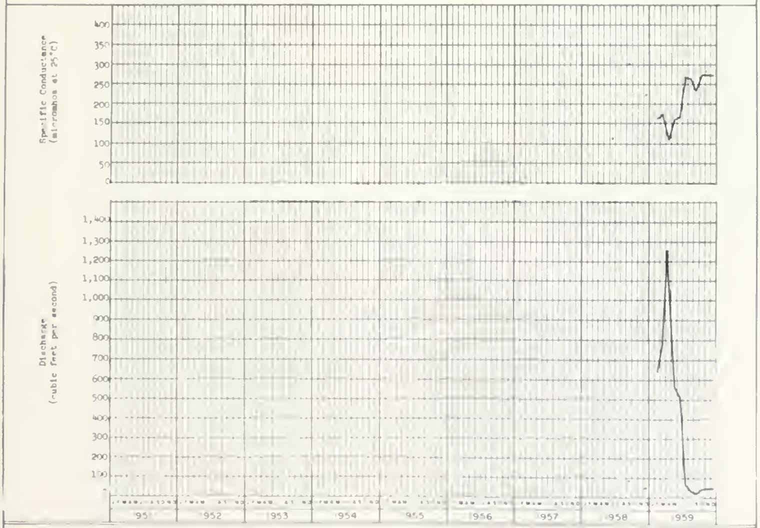
Water Quality Characteristics A review of analyses reveals Scott River to be excellent in quality, magnesium-calcium bicarbonate in character and class 1 for irrigation. It ranges from slightly to moderately hard, and does not exceed the drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	116	273	[illegible]
Temperature in °F	[illegible]	37	69	37
Dissolved oxygen in parts per million	12.5	8.2	12.5	8.2
Percent saturation	[illegible]	83	[illegible]	83
pH	8.1	7.3	8.1	7.3
Mineral constituents in parts per million				
Calcium (Ca)	33	[illegible]	31	10
Magnesium (Mg)	17	6.9	17	8.3
Sodium (Na)	5.9	1.8	[illegible]	1.8
Potassium (K)	2.2	0.1	2.2	0.1
Carbonate (CO_3)	[illegible]	0.0	0.0	[illegible]
Bicarbonate (HCO_3)	179	70	171	70
Sulfate (SO_4)	[illegible]	0.6	10	1.9
Chloride (Cl)	9.0	0.4	9.0	1.5
Nitrate (NO_3)	3.2	0.3	2.2	0.3
Fluoride (F)	0.1	0.0	0.1	0.0
Boron (B)	0.1	0.0	0.1	0.0
Silica (SiO_2)	22	14	21	16
Total dissolved solids in parts per million	190	74	176	74
Percent sodium	9	5	9	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	150	56	147	59
Noncarbonate	[illegible]	0.0	8	0.0
Turbidity	See 1959	See 1959	30	10
Coliform in most probable number per milliliter	620	0.62	620	0.62
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			0.90	0.10
Solid alpha			0.45	0.00
Dissolved beta			1.73	0.00
Solid beta			1.63	0.00

WATER QUALITY VARIATIONS



SCOTT RIVER NEAR FORT JONES (STA. 1b)

SALMON RIVER AT SOMESBAR (STA. 2a)

Sampling Point Station 2a is located in Section 1 of Township 11 North, Range 6 East, Humboldt Base and Meridian. Monthly water samples were collected at mid-depth, from the right bank, 0.5 mile east of Somesbar post office and 3 miles upstream from the confluence with the Klamath River.

Period of Record November 1958 through December 1959.

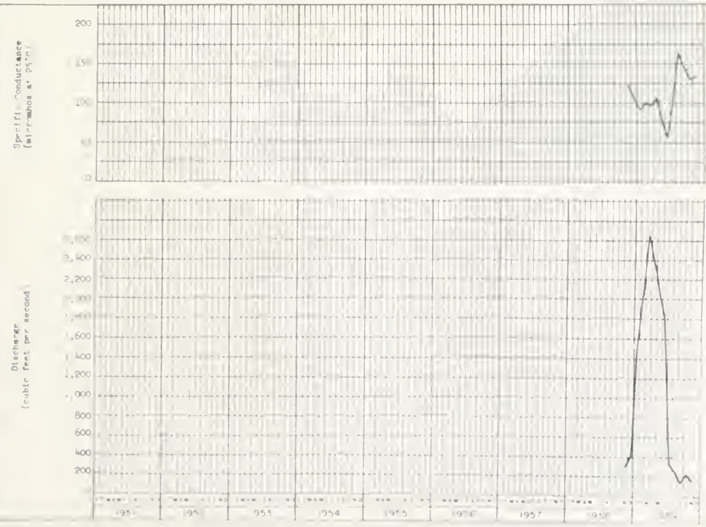
Water Quality Characteristics Antecedent data classify flow in Salmon River as excellent in quality, bicarbonate in character, soft to slightly hard, class 1 for irrigation and well within drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	176	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	39	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	8.3	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	7.3	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	1.8	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	92	33	92	33
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	6.5	1.8
Nitrate (NO_3)	[illegible]	[illegible]	1.6	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	0.1	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	18	[illegible]
Total dissolved solids in parts per million	109	41	109	41
Percent sodium	24	7	24	7
Hardness as $CaCO_3$ in parts per million				
Total	68	28	68	28
Noncarbonate	11	0.0	11	[illegible]
Turbidity			[illegible]	[illegible]
Coliform in most probable number per milliliter	2,400	0.06	2,400	0.06
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			0.10	0.00
Solid alpha			0.00	0.00
Dissolved beta			1.59	0.00
Solid beta			17.67	0.14

WATER QUALITY VARIATIONS



SALMON RIVER AT SOMESBAR (STA. 2a)

TRINITY RIVER AT LEWISTON (STA. 4a)

Sampling Point Station 4a is located in Section 19 of Township 33 North, Range 8 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected at mid-depth, from the left bank, at the USGS gaging station at Lewiston, and 0.8 mile downstream from Deadwood Creek.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Historical records at this station show the water to be excellent in quality, generally magnesium bicarbonate in character, class 1 for irrigation, with a range from soft to slightly hard, and within drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum [illegible]	Minimum [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	5.9	[illegible]	7.[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	20	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	[illegible]	40	125	[illegible]
Percent sodium	[illegible]	[illegible]	21	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	27	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	7	[illegible]
Turbidity	[illegible]	[illegible]	60	[illegible]
Coliform in most probable number per milliliter	7,000	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved beta	84.2	[illegible]	[illegible]	[illegible]
Solid beta	16.07	[illegible]	0.27	3.08

WATER QUALITY VARIATIONS

TRINITY RIVER AT LEWISTON (STA. 4a)

TRINITY RIVER NEAR BURNT RANCH (STA. 4b)

Sampling Point The Burnt Ranch station is located in Section 19 of Township 5 North, Range 7 East, Humboldt Base and Meridian. Monthly grab samples were collected from mid-depth, from the left bank 500 feet upstream from Cedar Flat Creek, 700 feet upstream from Highway 299 bridge at Cedar Flat, and 2.3 miles southeast of the town of Burnt Ranch.

Period of Record April 1958 through December 1959.

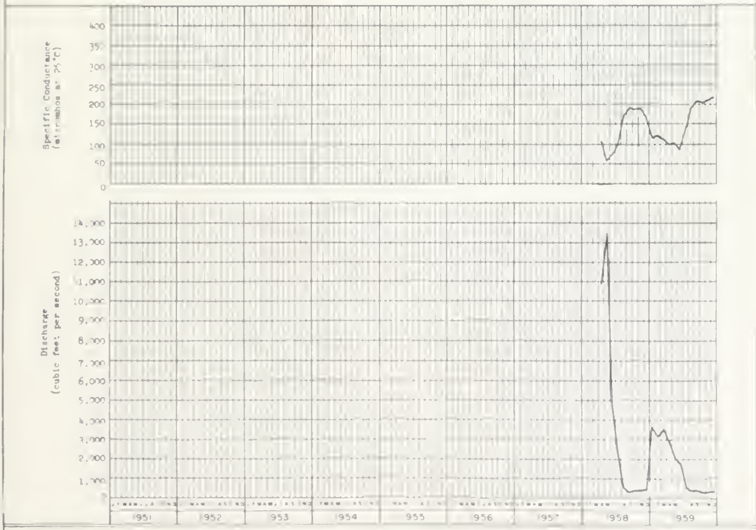
Water Quality Characteristics Past water analyses from Station 4b show the water to be excellent in quality, calcium-magnesium bicarbonate in character, class 1 for irrigation, soft to slightly hard, and within drinking water standards for mineral content. A study of analyses of Trinity River waters reveals a slight increase in mineral concentrations, on the order of 30 micromhos, occurs between Station 4a (Lewiston) and 4b.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	7.2	7.4	7.3
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	20	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	46
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	7.5
Total dissolved solids in parts per million	[illegible]	46	143	62
Percent sodium	20	8	20	8
Hardness as $CaCO_3$ in parts per million				
Total	100	30	100	36
Noncarbonate	13	0	13	[illegible]
Turbidity	See 1959	See 1959	[illegible]	[illegible]
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			0.41	0.18
Solid alpha			0.09	0.09
Dissolved beta			15.56	4.14
Solid beta			6.02	5.04

WATER QUALITY VARIATIONS



TRINITY RIVER NEAR BURNT RANCH (STA. 4b)

TRINITY RIVER NEAR HOOPA (STA. 4)

Sampling Point Station 4 is located in Section 31 of Township 8 North, Range 5 East, Humboldt Base and Meridian. Monthly water samples were collected from the left bank at the USGS gage 2 miles southeast of Hoopa, 0.5 mile downstream from Campbell Creek on the Hoopa Indian Reservation, and 12 miles upstream from its confluence with Klamath River.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Trinity River at Station 4 has historically been excellent in quality, magnesium-calcium bicarbonate in character, class 1 for irrigation, soft to moderately hard, and within drinking water standards for mineral content. Past records indicate a gradual increase of about 15 micromhos in the concentration of most dissolved minerals between Station 4b, Burnt Ranch, and Station 4.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	243	84	243	[illegible]
Temperature in °F	80	41	76	43
Dissolved oxygen in parts per million	14	6.7	12.6	7.6
Percent saturation	128	[illegible]	[illegible]	88
pH	10.0	5.2	8.1	7.4
Mineral constituents in parts per million				
Calcium (Ca)	26	7.[illegible]	18	12
Magnesium (Mg)	15	2.3	15	7.3
Sodium (Na)	8.4	1.4	8.4	2.[illegible]
Potassium (K)	1.6	[illegible].1	1.1	0.1
Carbonate (CO_3)	2	0.0	2	0.0
Bicarbonate (HCO_3)	126	47	126	58
Sulfate (SO_4)	12	0.6	11	4.8
Chloride (Cl)	12	0.0	12	2.0
Nitrate (NO_3)	1.2	0.0	0.5	0.2
Fluoride (F)	0.3	0.0	0.1	0.0
Boron (B)	0.21	0.0	0.2	0.0
Silica (SiO_2)	21	11	15	14
Total dissolved solids in parts per million	148	56	148	64
Percent sodium	18	6	13	7
Hardness as $CaCO_3$ in parts per million				
Total	120	40	120	50
Noncarbonate	17	0.0	17	1
Turbidity	180	0.2	70	1
Coliform in most probable number per milliliter	7,000.	<0.045	7,000	[illegible].06
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.92	0.00	0.92	[illegible]
Solid alpha	0.54	0.00	0.54	[illegible].27
Dissolved beta	36.46	0.00	1.09	[illegible].31
Solid beta	2.73	0.00	2.73	[illegible]

WATER QUALITY VARIATIONS

TRINITY RIVER NEAR HOOPA (STA. 4)

Smith River Basin

The California portion of the Smith River Basin occupies approximately 780 square miles in the extreme northwest portion of the North Coastal Region. The major portion of the area is drained by the Smith River whose Middle and South Forks originate on the western slope of the Siskiyou Mountains, and whose North Fork has its headwaters in Curry County, Oregon. The basin is bounded by the Pacific Ocean on the west, the California-Oregon state line to the north, the Del Norte-Siskiyou County line to the east, and the Klamath River watershed divide to the south.

Topography of the area is generally mountainous though interrupted with numerous steep-walled canyons and stream valleys. Elevation varies from sea level to heights of over 6,000 feet. Total average annual runoff in the Smith River Basin is on the order of 2,900,000 acre-feet.

Rough but relatively low mountains cover approximately 95 percent of this river unit. The Smith River Plain which lies along the coast covers about 50 square miles of agriculturally adaptable land. Logging and forest products constitute the largest source of income, followed in order of their importance by agriculture (dairying and bulb raising), mineral production, recreation and commerical fishing.

Waste discharges constitute only a minor source of inflow to the Smith River watershed and have not created a water impairment problem.

A surface water sampling station is maintained on Smith River near Crescent City to monitor quality of runoff from this basin.

SMITH RIVER NEAR CRESCENT CITY (STA. 3a)

Sampling Point Station 3a is located in Section 10 of Township 16 North, Range 1 East, Humboldt Base and Meridian. Monthly grab samples were collected from the left bank at the USGS gage, 8 miles east of Crescent City, 0.5 mile downstream from the south fork of the Smith River, and about 12 miles upstream from the mouth.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Past analyses of this water have shown it to be excellent in quality, magnesium bicarbonate in character, class 1 for irrigation, and soft to slightly hard. It has consistently met drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	147	65	141	[illegible]
Temperature in °F	78	39	[illegible]	41
Dissolved oxygen in parts per million	[illegible]	[illegible]	12.5	[illegible]
Percent saturation	135	59	[illegible]	82
pH	8.6	6.3	[illegible]	7.2
Mineral constituents in parts per million				
Calcium (Ca)	11	2.6	9.6	[illegible]
Magnesium (Mg)	13	3.4	[illegible]	[illegible]
Sodium (Na)	6.5	1.0	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	0.5	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	0.0	[illegible]
Bicarbonate (HCO_3)	89	[illegible]	89	41
Sulfate (SO_4)	7.7	[illegible]	5.0	4.8
Chloride (Cl)	[illegible]	[illegible]	4.8	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	27	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	94	41	94	49
Percent sodium	20	6	12	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	76	32	76	[illegible]
Noncarbonate	11	[illegible]	11	[illegible]
Turbidity	[illegible]	[illegible]	20	[illegible]
Coliform in most probable number per milliliter	230	[illegible]	230	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	0.00	0.20	[illegible]
Solid alpha	[illegible]	0.00	0.54	0.09
Dissolved beta	[illegible]	0.00	3.87	[illegible]
Solid beta	23.27	0.00	2.67	2.48

WATER QUALITY VARIATIONS

SMITH RIVER NEAR CRESCENT CITY (STA. 3a)

Redwood Creek and Mad River Unit

Mad River is a large stream, draining a total of 496 square miles in Humboldt and Trinity Counties. Redwood Creek drains an area of about 279 square miles, north of Mad River Basin in Humboldt County. Both of these streams enter the Pacific Ocean and estimated mean annual runoffs of Mad River and Redwood Creek are 925,500 acre-feet and 823,500 acre-feet, respectively. Like other streams in the North Coastal Region, precipitation and runoff are high during the winter months and generally quite low in the late summer and fall.

In both of these stream basins a total of only 21 square miles is classed as valley and mesa land, the remaining area being a rugged mountainous terrain. Lumbering activities comprise the major users of surface waters in these basins; however, water is diverted from Mad River for use as a municipal supply for the communities of Arcata and Eureka. Both of these streams support runs of anadromous fish and resident trout and are considered to have significant value as recreational areas.

Waste discharges entering these streams are insignificant and do not cause an impairment problem.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed.

Monitoring Station	Page Number of Station Discussion
Redwood Creek at Orick	44
Mad River at Arcata	46

REDWOOD CREEK AT ORICK (STA. 3b)

Sampling Point Redwood Creek sampling station is located in Section 4 of Township 10 North, Range 1 East, Humboldt Base and Meridian. Monthly grab samples were collected from the left bank on the downstream side of the U. S. Highway 101 bridge at Orick and about 2 miles upstream from the mouth.

Period of Record November 1958 through December 1959.

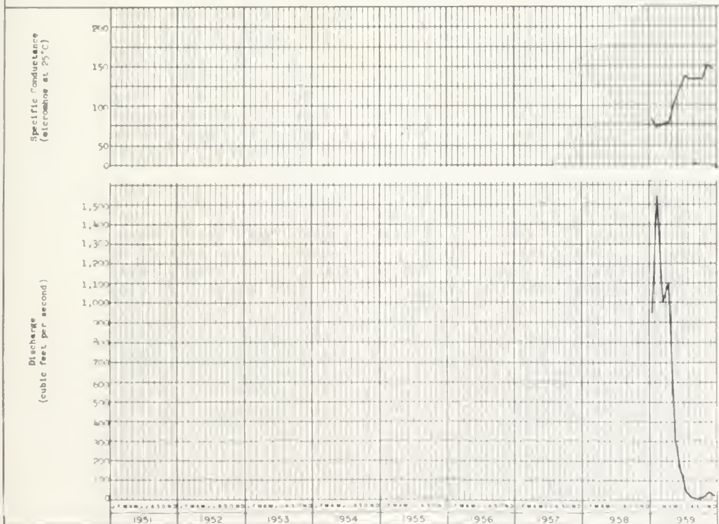
Water Quality Characteristics Past analyses show the water at Station 3b to be excellent in quality, calcium bicarbonate in character, class 1 for irrigation and within drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	47	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	7.[illegible]	[illegible]	7.6
Percent saturation	1[illegible]	77	[illegible]	77
pH	7.[illegible]	6.9	7.[illegible]	6.9
Mineral constituents in parts per million				
Calcium (Ca)	22	8.8	22	8.8
Magnesium (Mg)	4.3	1.6	4.3	1.6
Sodium (Na)	7.3	2.[illegible]	7.3	2.7
Potassium (K)	1.0	[illegible]	1.0	[illegible]
Carbonate (CO_3)	0.0	[illegible]	0.0	[illegible]
Bicarbonate (HCO_3)	73	[illegible]	73	30
Sulfate (SO_4)	1[illegible]	1.9	13	1.9
Chloride (Cl)	1[illegible]	4.2	10	4.2
Nitrate (NO_3)	1.8	0.0	1.8	0.0
Fluoride (F)	0.1	0.[illegible]	0.1	0.0
Boron (B)	0.1	0.0	0.1	0.0
Silica (SiO_2)	12	4.7	12	4.7
Total dissolved solids in parts per million	[illegible]	42	[illegible]	42
Percent sodium	21	9	21	9
Hardness as $CaCO_3$ in parts per million				
Total	68	29	66	29
Noncarbonate	16	0.0	16	0.0
Turbidity	See 1959	See 1959	48	1
Coliform in most probable number per milliliter	>7,000	0.62	>7,000	0.62
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			0.20	0.00
Solid alpha			0.27	0.00
Dissolved beta			0.00	0.00
Solid beta			4.51	1.88

WATER QUALITY VARIATIONS



REDWOOD CREEK AT ORICK (STA. 3b)

MAD RIVER NEAR ARCATA (STA. 6a)

Sampling Point Station 6a is located in Section 15 of Township 6 North, Range 1 East, Humboldt Base and Meridian. Monthly water samples are collected in center of stream from Highway 299 bridge, about 4.5 miles upstream from the mouth, and 3 miles northeast of Arcata.

Period of Record November 1958 through December 1959.

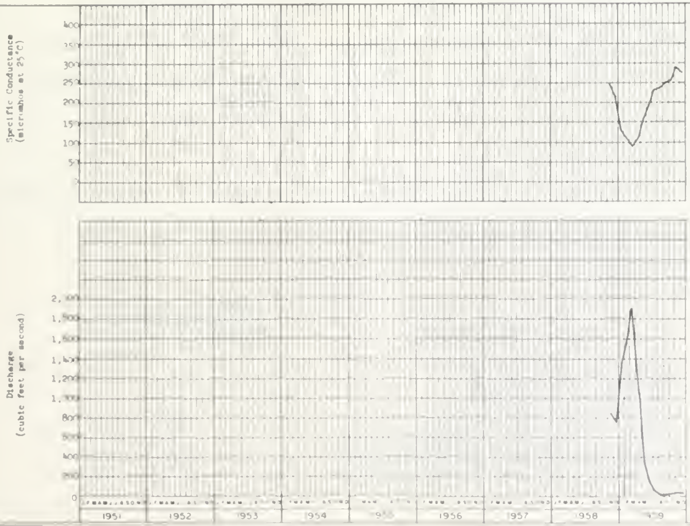
Water Quality Characteristics Runoff in Mad River is excellent in quality, calcium bicarbonate in character, class 1 for irrigation, soft to moderately hard, and within drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum [illegible]	Minimum - [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	174	64	[illegible]	[illegible]
Percent sodium	12	[illegible]	12	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	136	[illegible]	136	[illegible]
Noncarbonate	16	[illegible]	16	[illegible]
Turbidity	See 1959	See 1959	[illegible]	[illegible]
Coliform in most probable number per milliliter	7,000	[illegible]	7,000	[illegible]
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			4.61	[illegible]
Solid beta			8.62	0.00

WATER QUALITY VARIATIONS



MAD RIVER NEAR ARCATA (STA. 6a)

Eel River Basin

The Eel River watershed traverses the south-central portion of the North Coastal Region. It drains an area of 3,701 square miles, of which 3,574 square miles are rugged mountains, scarred by numerous landslides and narrow, steep stream canyons. Several small river terraces and a broad coastal plain constitute the remaining 127 square miles in the basin. The Eel River has an average annual discharge of about 6,273,000 acre-feet.

Eel River water is used for irrigation, power development, industry, recreation, and public and domestic water supplies. Except for power diversions which discharge to Russian River Basin, these users divert extremely small quantities and the abundant water resources of this basin are largely undeveloped. Lumber by-product industries and irrigation are considered the most probable future users of significant quantities of water within the basin.

Waste discharges and irrigation return entering the Eel River at the present time are small in quantity and do not significantly impair the receiving waters.

The following tabulation presents the names of stations maintained to monitor surface water quality in this basin and the page on which each is discussed.

EEL RIVER NEAR DOS RIOS (STA. 5d)

Sampling Point Station 5d is located in Section 31 of Township 21 North, Range 13 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected in the center of the channel from the highway bridge 250 feet upstream from the confluence of Outlet Creek, 7.5 miles northeast of Longvale and 8.5 miles south of Dos Rios.

Period of Record April 1958 through December 1959.

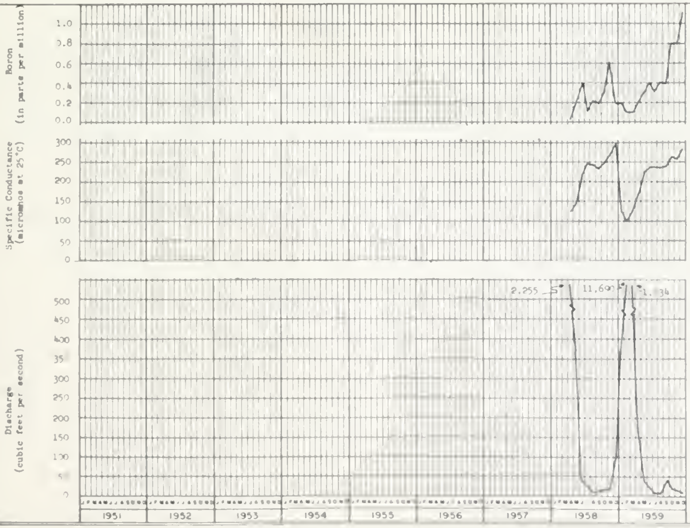
Water Quality Characteristics Past analyses identify the water at Station 5d as good in quality, calcium bicarbonate in character, soft to moderately hard, and within drinking water standards for mineral content. At times boron concentrations in excess of 0.5 ppm are found, placing this water in class 2 for irrigation. Although the source of boron in this river has not yet been identified, evidence indicates the boron originates from geologic formations existing in the watershed upstream from and in the vicinity of this station. Runoff from numerous mineralized springs, probably of deep-seated origin, also enter the waterway of Eel River upstream from this station. It has been established that springs high in boron exist throughout much of the Clear Lake area which is coterminous with the upper watershed of this basin.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	12	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	3.9	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	1.1	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	169	71	168	71
Percent sodium	[illegible]	11	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	136	[illegible]	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	1	[illegible]	[illegible]
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			[illegible]	[illegible]
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS



EEL RIVER NEAR DOS RIOS (STA. 5d)

EEL RIVER NEAR MCCANN (STA. 5)

Sampling Point The McCann station is located in Section 3 of Township 2 South, Range 3 East, Humboldt Base and Meridian. Monthly water samples were collected from the center of the channel, from the McCann Bridge 46.5 miles upstream from the mouth.

Period of Record April 1951 through December 1959.

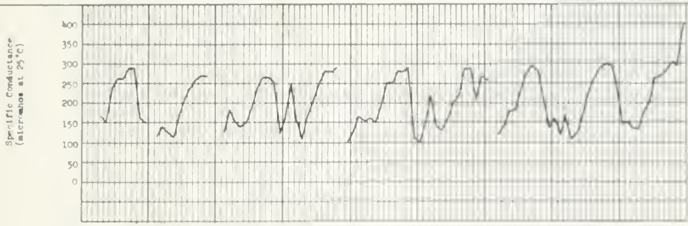
Water Quality Characteristics Eel River water near McCann is calcium bicarbonate in character, class 1 for irrigation uses, with a range from soft to moderately hard, and consistently meets drinking water standards for mineral content. An increase in conductivity, averaging about 25 micromhos, usually occurs from Stations 5d to 5. Boron, however, decreases significantly from the upstream station to the downstream station. Boron concentrations at Station 5 range from 0 to 0.3 ppm. This decrease in boron between the two stations is attributable to low boron content waters tributary to the Eel River between the two stations.

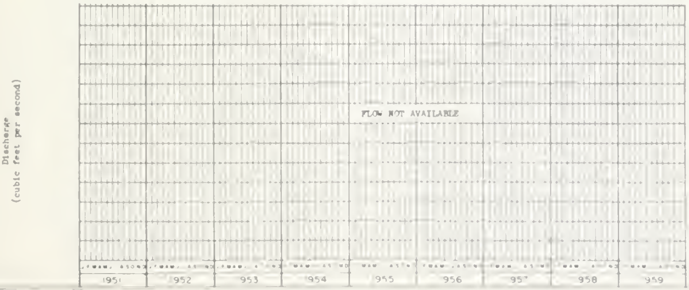
Significant Water Quality Changes During 1959, samples of water from Station 5 ranged from slightly to very hard, reaching the maximum for the period of record in December when 204 ppm hardness was reported. The lack of dilution waters during the extremely low flow period, occurring during the latter part of the year, was probably the cause of the high concentrations of hardness found at this station.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	399	101	399	134
Temperature in °F	82	42	71	44
Dissolved oxygen in parts per million	15.4	6.6	11.8	8.6
Percent saturation	150	54	102	90
pH	8.6	[illegible]	[illegible]	7.1
Mineral constituents in parts per million				
Calcium (Ca)	40	9.8	37	25
Magnesium (Mg)	11	2.9	9.6	5.1
Sodium (Na)	16	2.6	11	2.9
Potassium (K)	2.7	0.5	1.4	0.5
Carbonate (CO_3)	4	0.0	4	0.0
Bicarbonate (HCO_3)	230	53	230	70
Sulfate (SO_4)	26	7.7	22	12
Chloride (Cl)	20	[illegible].0	13	2.2
Nitrate (NO_3)	0.7	0.0	0.7	0.1
Fluoride (F)	0.3	0.0	0.1	0.0
Boron (B)	0.30	0.0	0.30	0.0
Silica (SiO_2)	14	7	10	7
Total dissolved solids in parts per million	214	54	214	72
Percent sodium	26	9	15	8
Hardness as $CaCO_3$ in parts per million				
Total	204	41	204	65
Noncarbonate	25	0.0	25	7
Turbidity	1,100	0.2	85	1
Coliform in most probable number per milliliter	>7,000.	<0.045	23.	0.046
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.43	0.00	0.72	0.00
Solid alpha	0.59	0.00	0.09	0.00
Dissolved beta	45.1	0.00	2.08	0.00
Solid beta	[illegible]	[illegible]	[illegible]	1.58

WATER QUALITY VARIATIONS





EEL RIVER NEAR McCANN (STA. 5)

EEL RIVER AT SCOTIA (STA. 6)

Sampling Point The station on Eel River at Scotia is located in Section 5 of Township 1 North, Range 1 East, Humboldt Base and Meridian. Monthly grab samples were collected from the left bank approximately 0.6 mile downstream from Highway 101 bridge between Scotia and Rio Dell at the foot of Painter Street, and about 12 miles upstream from the mouth.

Period of Record April 1951 through December 1959.

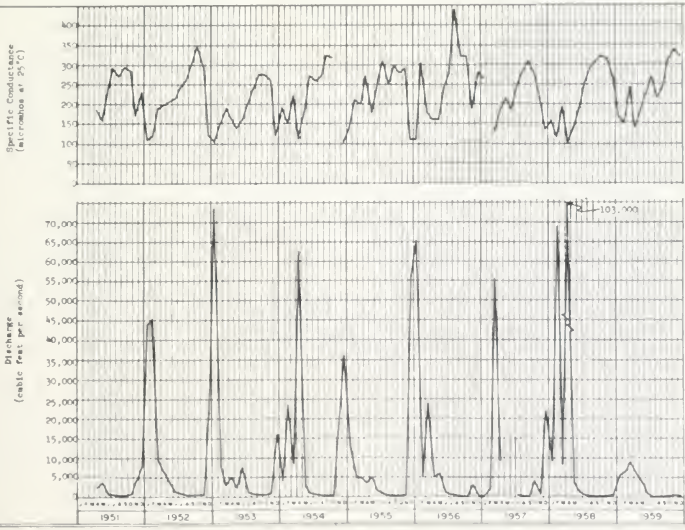
Water Quality Characteristics Antecedent data reveal the water at Station 6 to be excellent in quality, generally calcium bicarbonate in character, soft to moderately hard, and within the recommended limits for mineral content in drinking water. Only minor increases in mineral content occur between this station and Station 5 and on occasions, when tributary inflow rates are high, the mineral content of Eel River has decreased slightly in this reach.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	24
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	4.1
Potassium (K)	[illegible]	.6	[illegible]	[illegible]
Carbonate (CO_3)	6	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	72
Sulfate (SO_4)	11	[illegible]	[illegible]	12
Chloride (Cl)	20	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	15	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	254	57	[illegible]	92
Percent sodium	26	[illegible]	20	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	212	43	159	66
Noncarbonate	83	[illegible]	23	4
Turbidity	1,100	[illegible]	60	1
Coliform in most probable number per milliliter	>7,000	[illegible]	620	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.73	[illegible]	[illegible]	[illegible]
Solid alpha	1.22	[illegible]	[illegible]	0.17
Dissolved beta	10.30	0.00	[illegible]	5.15
Solid beta	13.90	0.00	2.94	0.00

WATER QUALITY VARIATIONS



EEL RIVER AT SCOTIA (STA. 6)

OUTLET CREEK NEAR LONGVALE (STA. 5b)

Sampling Point The station is located in Section 31 of Township 21 North, Range 13 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, 300 feet downstream from the railroad bridge, 200 feet upstream from the confluence with the Eel River, 7.5 miles northeast of Longvale and 8.5 miles south of Dos Rios.

Period of Record May 1958 through December 1959.

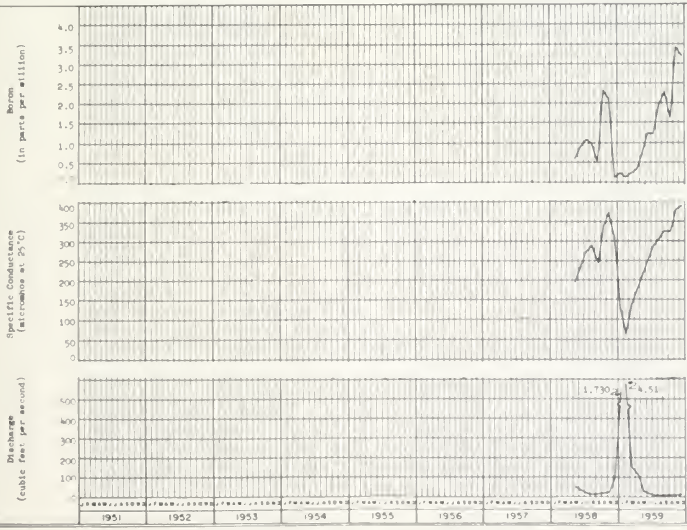
Water Quality Characteristics Since inception of a monitoring station on Outlet Creek, waters have been calcium bicarbonate in character, slightly to moderately hard and within drinking water standards for mineral content. The water in Outlet Creek, because of boron concentrations, ranges from class 1 to class 3 for irrigation use. Boron usually exceeds 0.5 ppm and periodically reaches values in excess of 2.0 ppm.

Significant Water Quality Changes During 1959, boron concentrations in Outlet Creek reached a maximum of 3.4 ppm in November and were sufficiently high during the last eight months of the year to cause the water to be class 2 or 3 for irrigation. The high concentrations of boron is attributed to the lack of dilution waters in Outlet Creek. The source of boron degradation to Outlet Creek has not as yet been ascertained. However, it is believed that the source, as in the headwaters of the Eel River, is geologic formations and springs.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	17.8	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	234	42	234	42
Percent sodium	[illegible]	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	[illegible]	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			[illegible]	[illegible]
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS



OUTLET CREEK NEAR LONGVALE (STA. 5b)

EEL RIVER, MIDDLE FORK AT DOS RIOS (STA. 5c)

Sampling Point Station 5c is located in Section 6 of Township 21 North, Range 13 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the center of the channel from the highway bridge 0.5 mile southeast of Dos Rios and 0.2 mile upstream from the confluence with Eel River.

Period of Record April 1958 through December 1959.

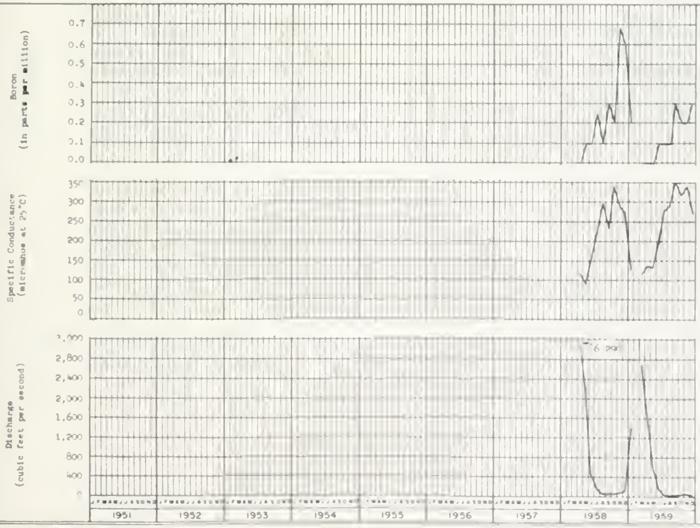
Water Quality Characteristics A review of analyses of samples reveals water at this station to be calcium bicarbonate in character, soft to moderately hard, and to consistently meet drinking water standards for mineral content. Boron concentrations at times place this water in class 2 for irrigation.

Significant Water Quality Changes In respect to boron, waters at this station were class 1 during the entire 1959 year.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	374	[illegible]	374	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	16	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	207	54	207	56
Percent sodium	[illegible]	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	[illegible]	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			[illegible]	[illegible]
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS



EEL RIVER, MIDDLE FORK AT DOS RIOS (STA. 5c)

EEL RIVER, SOUTH FORK NEAR MIRANDA (STA. 7)

Sampling Point Station 7 is located in Section 30 of Township 3 South, Range 4 East, Humboldt Base and Meridian. Monthly water samples were collected from the right bank, at the USGS gage at Sylvandale camp grounds on U. S. Highway 101, 6 miles south of Miranda and about 12 miles upstream from the confluence with Eel River.

Period of Record April 1951 through December 1959.

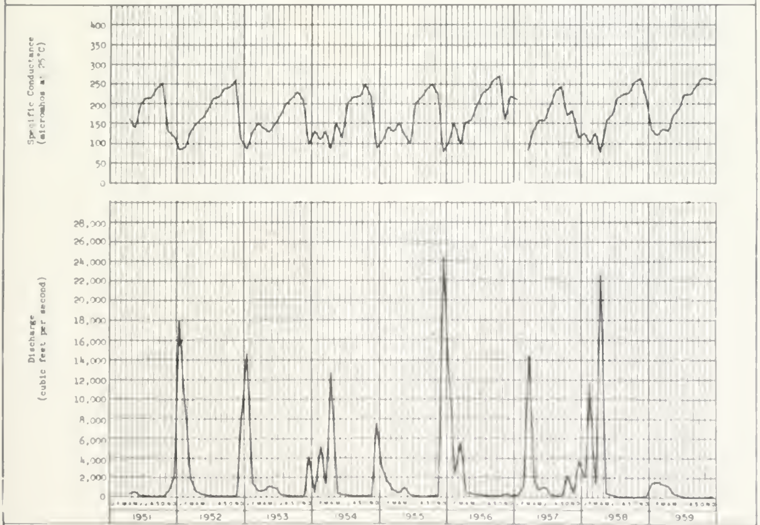
Water Quality Characteristics Past records show South Fork Eel River water to be excellent in quality, calcium bicarbonate in character, class 1 for irrigation, soft to moderately hard, and within the recommended limits for minerals in drinking water.

Significant Water Quality Changes Boron reached 0.5 ppm, the upper limit for class 1 irrigation water, in December 1959. Boron possibly occurs in higher concentrations in the upstream reaches of the South Fork since this fork of the Eel River originates in geological formations which are known to contribute boron to surface runoff.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	79	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	142	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	0.5	[illegible]
Silica (SiO_2)	86	[illegible]	14	[illegible]
Total dissolved solids in parts per million	[illegible]	45	[illegible]	[illegible]
Percent sodium	[illegible]	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	124	29	124	52
Noncarbonate	14	[illegible]	[illegible]	[illegible]
Turbidity	1,300	[illegible]	5	1
Coliform in most probable number per milliliter	2,400	[illegible]	62	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.22	[illegible]	0.20	0.09
Solid alpha	[illegible]	0.00	0.36	0.21
Dissolved beta	19.5	[illegible]	4.84	0.00
Solid beta	13.54	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS



EEL RIVER, SOUTH FORK NEAR MIRANDA (STA. 7)

VAN DUZEN RIVER NEAR BRIDGEVILLE (STA. 5a)

Sampling Point The station is located in Section 17 of Township 1 North, Range 3 East, Humboldt Base and Meridian. Monthly water samples were collected at the USGS gage, from the center of the channel from the bridge on Highway 36, 0.3 mile downstream from Pip Creek, 0.5 mile upstream from Rogers Creek, 4 miles west of Bridgeville and about 20 miles upstream from its confluence with Eel River.

Period of Record April 1958 through December 1959.

Water Quality Characteristics Water at Station 5a is calcium bicarbonate in character, class 1 for irrigation, ranging from soft to moderately hard. It meets drinking water standards for mineral content. The quality of this water does not differ significantly from the quality of Eel River water at Scotia.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	43	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	93	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	37	[illegible]	37
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	7.2	12	7.2
Total dissolved solids in parts per million	207	47	207	47
Percent sodium	21	[illegible]	21	8
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	[illegible]	152	[illegible]
Noncarbonate	[illegible]	[illegible]	25	[illegible]
Turbidity	See 1959	See 1959	15	[illegible]
Coliform in most probable number per milliliter	See 1959	See 1959	62	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	0.19
Dissolved beta			[illegible]	[illegible]
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS

VAN DUZEN RIVER NEAR BRIDGEVILLE (STA. 5a)

Mattole River-Mendocino Coast Unit

The unit is comprised of several noncontiguous watersheds draining the south coastal portion of Region 1 and includes the following rivers: Mattole, Noyo, Big, Navarro and Gualala. These rivers drain approximately 1,290 square miles of predominately mountainous coast land with less than one percent of the area being valley and mesa lands. The combined annual mean seasonal runoff of these rivers is estimated to exceed 2,430,000 acre-feet.

Present development in this area is dependent on the lumber industry and to a limited extent on stock raising. Water development is largely on an individual basis with a few small public agencies formed to develop and distribute domestic and municipal supplies. Waste discharges from lumber industries and small communities have not created any significant water quality impairment problems in these basins.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this unit and the page on which each is discussed.

Monitoring Station	Page Number of Station Discussion
Mattole River near Petrolia	66
Noyo River near Fort Bragg	68
Big River near mouth	70
Navarro River near Navarro	72
Gualala River, South Fork near Annapolis	74

MATTOLE RIVER NEAR PETROLIA (STA. 7a)

Sampling Point Station 7a is located in Section 11 of Township 2 South, Range 2 West, Humboldt Base and Meridian. Monthly grab samples were collected from the right bank at the USGS gage 0.2 mile downstream from Clear Creek, 1.3 miles upstream from North Fork, 1.2 miles southeast of Petrolia, Humboldt County, and about 5 miles upstream from the mouth.

Period of Record January 1959 through December 1959.

Water Quality Characteristics Water at Station 7a is calcium bicarbonate in character, excellent in quality, class 1 for irrigation, soft to moderately hard, and within mineral standards for drinking water.

Significant Water Quality Changes Radioactivity decreased from 15.7 μμc/l total activity in May to 0.3 μμc/l in September.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See 1959	See 1959	[illegible]	132
Temperature in °F			76	47
Dissolved oxygen in parts per million			12.7	[illegible]
Percent saturation			136	[illegible]
pH			8.2	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			42	[illegible]
Magnesium (Mg)			[illegible]	[illegible]
Sodium (Na)			[illegible]	[illegible]
Potassium (K)			[illegible]	[illegible]
Carbonate (CO_3)			[illegible]	[illegible]
Bicarbonate (HCO_3)			[illegible]	[illegible]
Sulfate (SO_4)			[illegible]	[illegible]
Chloride (Cl)			7	[illegible]
Nitrate (NO_3)			[illegible]	[illegible]
Fluoride (F)			[illegible]	[illegible]
Boron (B)			[illegible]	[illegible]
Silica (SiO_2)			15	[illegible]
Total dissolved solids in parts per million			184	[illegible]
Percent sodium			[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total			134	[illegible]
Noncarbonate			27	2
Turbidity			30	1
Coliform in most probable number per milliliter			2,400	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			[illegible]	[illegible]
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS

MATTOLE RIVER NEAR PETROLIA (STA. 7a)

NOYO RIVER NEAR FORT BRAGG (STA. 10c)

Sampling Point Station 10c is situated in Section 10 of Township 18 North, Range 17 West, Mt. Diablo Base and Meridian. Prior to November 1959, monthly grab samples were collected from the right bank, 3.5 miles east of Fort Bragg, and about 4 miles upstream from the mouth. In November the station was moved upstream approximately one mile to its present site at the proposed Fort Bragg Municipal Water Supply intake. This relocation was made because of the occurrence of unusually high concentrations of most mineral constituents caused by sea-water incursion due to tidal action.

Period of Record January 1959 through December 1959.

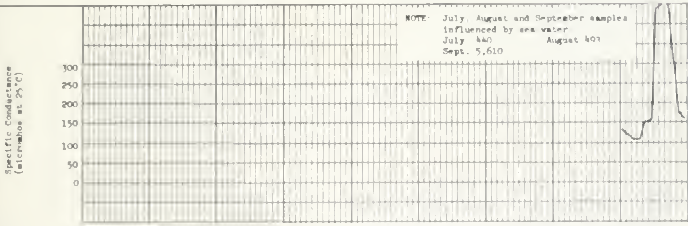
Water Quality Characteristics Noyo River water at Station 10c is excellent in quality. It is a bicarbonate type with calcium as its major cation. Mineral concentrations place this water in class 1 for irrigation, soft to slightly hard and within drinking water standards for mineral content.

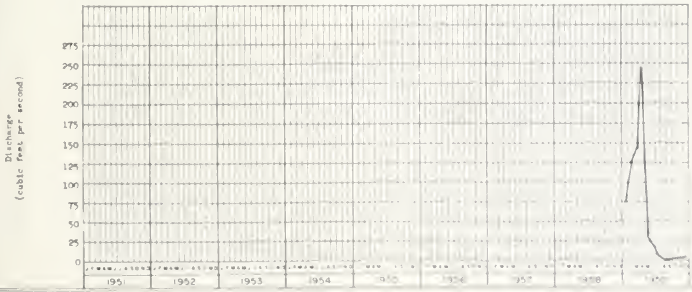
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See 1959	See 1959	174	113
Temperature in °F			[illegible]	41
Dissolved oxygen in parts per million			11 [illegible]	[illegible]
Percent saturation			99	8[illegible]
pH			7.[illegible]	7.1
Mineral constituents in parts per million				
Calcium (Ca)			16	7.6
Magnesium (Mg)			5.6	2.9
Sodium (Na)			13	7
Potassium (K)			1.2	[illegible]
Carbonate (CO_3)			[illegible]	[illegible]
Bicarbonate (HCO_3)			96	53
Sulfate (SO_4)			5.8	3.8
Chloride (Cl)			11	5.5
Nitrate (NO_3)			[illegible]	[illegible]
Fluoride (F)			[illegible]	[illegible]
Boron (B)			[illegible]	[illegible]
Silica (SiO_2)			21	17
Total dissolved solids in parts per million			113	80
Percent sodium			31	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total			67	[illegible]
Noncarbonate			[illegible]	[illegible]
Turbidity			1[illegible]	[illegible]
Coliform in most probable number per milliliter			2,600	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			12.05	[illegible]
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS





NOYO RIVER NEAR FORT BRAGG (STA. 10c)

BIG RIVER NEAR MOUTH (STA. 8c)

Sampling Point Station 8c is located in Section 24, Township 17 North, Range 17 West, Mt. Diablo Base and Meridian. Monthly water samples were collected from the right bank approximately 12 miles upstream from the mouth about 9 miles east of Mendocino.

Period of Record January 1959 through December 1959.

Water Quality Characteristics Water at Station 8c is excellent in quality, calcium bicarbonate in character, soft to moderately hard and within drinking water standards for mineral content. Although it is class 1 for irrigation throughout the year, boron has reached the maximum recommended concentration of 0.5 ppm at various times. The source of the boron in this stream has not as yet been ascertained.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See 1959	See 1959	[illegible]	[illegible]
Temperature in °F			[illegible]	39
Dissolved oxygen in parts per million			[illegible]	8.1
Percent saturation			[illegible]	86
pH			[illegible]	7.1
Mineral constituents in parts per million				
Calcium (Ca)			30	12
Magnesium (Mg)			8.8	3.4
Sodium (Na)			16	7.5
Potassium (K)			2.8	0.7
Carbonate (CO_3)			[illegible]	0.0
Bicarbonate (HCO_3)			127	54
Sulfate (SO_4)			14	[illegible]
Chloride (Cl)			16	6.5
Nitrate (NO_3)			[illegible]	[illegible]
Fluoride (F)			0.2	[illegible]
Boron (B)			0.5	[illegible]
Silica (SiO_2)			24	16
Total dissolved solids in parts per million			154	82
Percent sodium			28	23
Hardness as $CaCO_3$ in parts per million				
Total			[illegible]	44
Noncarbonate			[illegible]	0.0
Turbidity			[illegible]	0.9
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha			0.20	0.17
Solid alpha			0.63	0.09
Dissolved beta			3.59	0.00
Solid beta			8.82	0.00

WATER QUALITY VARIATIONS

BIG RIVER NEAR MOUTH (STA. 8c)

NAVARRO RIVER NEAR NAVARRO (STA. 8b)

Sampling Point Navarro River sampling Station 8b is located in Section 7 of Township 15 North, Range 16 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank at the USGS gage 2.7 miles downstream from North Fork, 5.4 miles upstream from the mouth and 6.6 miles west of Navarro.

Period of Record January 1959 through December 1959.

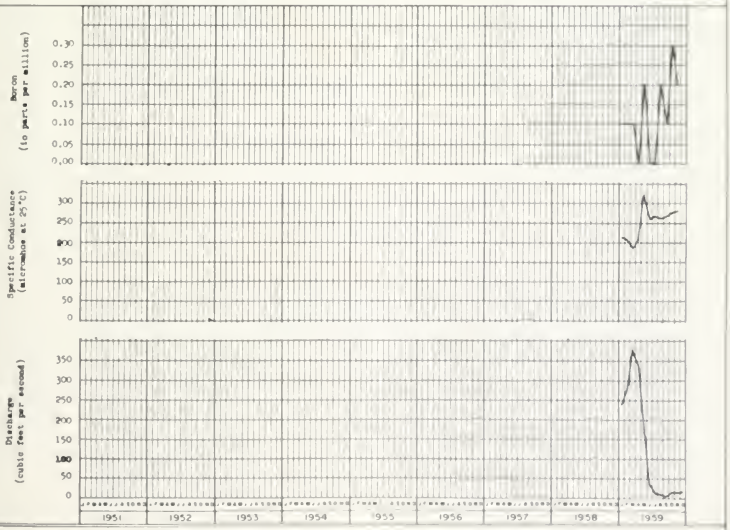
Water Quality Characteristics Past analyses show water at this station to be excellent in quality, calcium bicarbonate to calcium-magnesium bicarbonate in character, class 1 for irrigation, slightly to moderately hard, and within drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See 1959	See 1959	[illegible]	188
Temperature in °F			[illegible]	[illegible]
Dissolved oxygen in parts per million			[illegible]	[illegible]
Percent saturation			[illegible]	91
pH			[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			30	18
Magnesium (Mg)			12	7.2
Sodium (Na)			24	8.5
Potassium (K)			2.0	1.0
Carbonate (CO_3)			[illegible]	[illegible]
Bicarbonate (HCO_3)			155	[illegible]
Sulfate (SO_4)			25	[illegible]
Chloride (Cl)			29	7.5
Nitrate (NO_3)			1.3	[illegible]
Fluoride (F)			0.2	[illegible]
Boron (B)			0.3	[illegible]
Silica (SiO_2)			21	17
Total dissolved solids in parts per million			188	121
Percent sodium			32	19
Hardness as $CaCO_3$ in parts per million				
Total			126	77
Noncarbonate			3	0.0
Turbidity			4	1
Coliform in most probable number per milliliter			620	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha			0.09	0.00
Solid alpha			0.42	[illegible]
Dissolved beta			2.16	0.00
Solid beta			6.73	[illegible]

WATER QUALITY VARIATIONS



NAVARRO RIVER NEAR NAVARRO (STA. 8b)

GUALALA RIVER, SOUTH FORK NEAR ANNAPOLIS (STA. 9a)

Sampling Point Station 9a is located in Section 21 of Township 10 North, Range 14 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank at the USGS gage, 1,000 feet downstream from Wheatfield Fork Gualala River, 4.8 miles west of Annapolis, and about 8 miles upstream from the mouth.

Period of Record January 1959 through December 1959.

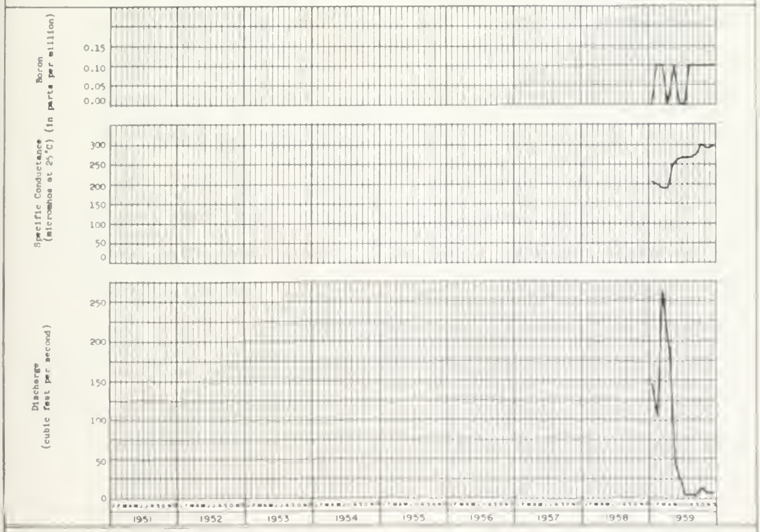
Water Quality Characteristics Gualala River is calcium-magnesium bicarbonate in character, class 1 for irrigation, slightly to moderately hard, and within drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See 1959	See 1959	[illegible]	[illegible]
Temperature in °F			[illegible]	[illegible]
Dissolved oxygen in parts per million			[illegible]	[illegible]
Percent saturation			[illegible]	[illegible]
pH			[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			32	[illegible]
Magnesium (Mg)			[illegible]	[illegible]
Sodium (Na)			[illegible]	[illegible]
Potassium (K)			[illegible]	[illegible]
Carbonate (CO_3)			[illegible]	[illegible]
Bicarbonate (HCO_3)			[illegible]	[illegible]
Sulfate (SO_4)			[illegible]	[illegible]
Chloride (Cl)			[illegible]	[illegible]
Nitrate (NO_3)			[illegible]	[illegible]
Fluoride (F)			[illegible]	[illegible]
Boron (B)			[illegible]	[illegible]
Silica (SiO_2)			17	[illegible]
Total dissolved solids in parts per million			[illegible]	[illegible]
Percent sodium			22	17
Hardness as $CaCO_3$ in parts per million				
Total			140	79
Noncarbonate			8	[illegible]
Turbidity			2	[illegible]
Coliform in most probable number per milliliter			[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			[illegible]	[illegible]
Solid beta			4.37	[illegible]

WATER QUALITY VARIATIONS



GUALALA RIVER, SOUTH FORK NEAR ANNAPOLIS (STA. 9a)

Russian River Basin

The Russian River Basin lies in the southern end of the North Coastal Region (No. 1) and covers about 1,500 square miles, of which approximately 1,200 are mountains and foothills and the remainder valley and mesa lands. The watershed is bounded on the east by the Cow Mountain Range and on the west by the Coastal Range. Waters draining from the watershed flow into the Pacific Ocean at Jenner, approximately 15 miles downstream from Guerneville. The Russian River has a total annual flow of approximately 1,500,000 acre-feet. Approximately 180,000 acre-feet of Eel River water is imported annually from Lake Pillsbury for power generation at Potter Valley Powerhouse within the Russian River watershed.

The most prominent uses of surface waters in this basin are recreational and industrial. The Russian River valley area contains a large number of recreational facilities for boating, swimming, and fishing. Logging and lumber operations and food processing comprise the major industrial uses of water. Approximately 300 square miles of the Russian River drainage basin are potential agricultural lands.

Most water users in the Russian River Basin discharge wastes to the river in quantities less than 0.5 mgd (million gallons per day). Three users, the Masonite Corporation, the City of Ukiah, and the City of Santa Rosa, discharge wastes in quantities over 0.5 mgd to the Russian River or its tributaries. During the nine-year period of quality record on the Russian River, none of these wastes discharges has seriously impaired the quality of surface waters.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed.

Monitoring Station	Page Number of Station Discussion
Russian River near Hopland	78
Russian River near Healdsburg	80
Russian River at Guerneville	82
Russian River, East Fork at Potter Valley Powerhouse	84

RUSSIAN RIVER NEAR HOPLAND (STA. 8a)

Sampling Point Station 8a is located in Section 36 of Township 14 North, Range 12 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected at Largo Road bridge site, 0.6 mile east of Highway 101, and 3.8 miles north of Hopland.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Past analyses show Russian River at Station 8a to be generally calcium bicarbonate in character, soft to moderately hard, and chemically suitable for drinking water. The quality of water at Station 8a does not differ significantly from the quality at Potter Valley Powerhouse (Station 10a). Boron frequently causes the water at Station 8a to be class 2 for irrigation. Highly mineralized spring runoff and solution of minerals from geologic formations in tributary streams are the source of the boron in this river.

Significant Water Quality Changes For the first year since 1953, boron, which reached the maximum of 0.5 ppm in December 1959, did not exceed the limit for class 1 irrigation water.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	274	[illegible]	197	168
Temperature in °F	84	45	71	48
Dissolved oxygen in parts per million	14.[illegible]	7.0	11.[illegible]	7.0
Percent saturation	150	68	113	[illegible]8
pH	[illegible].4	6.4	7.9	7.1
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]1	20	18
Magnesium (Mg)	[illegible]	5.5	7.9	7.7
Sodium (Na)	1[illegible]	4.[illegible]	8.7	4.3
Potassium (K)	[illegible]	0.5	1.7	1.4
Carbonate (CO_3)	13	0.0	[illegible].0	0.0
Bicarbonate (HCO_3)	142	62	11[illegible]	78
Sulfate (SO_4)	11	1.0	8.6	[illegible].4
Chloride (Cl)	9.0	1.[illegible]	9.[illegible]	3.2
Nitrate (NO_3)	1.0	0.3	1.2	0.6
Fluoride (F)	0.3	[illegible].0	0.1	0.[illegible]
Boron (B)	0.80	0.[illegible]	0.5	0.2
Silica (SiO_2)	17	7.3	12	10
Total dissolved solids in parts per million	161	71	116	99
Percent sodium	20	10	19	10
Hardness as $CaCO_3$ in parts per million				
Total	116	52	88	70
Noncarbonate	12	0.0	8	0.0
Turbidity	600	0.0	30	[illegible]
Coliform in most probable number per milliliter	>7,000.	<0.045	2,400.	0.045
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.[illegible]2	[illegible]	0.51	[illegible].19
Solid alpha	0.59	[illegible]	[illegible]	[illegible].21
Dissolved beta	13.91	[illegible].00	0.[illegible]	[illegible]
Solid beta	14.01	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS

RUSSIAN RIVER NEAR HOPLAND (STA. 8a)

RUSSIAN RIVER NEAR HEALDSBURG (STA. 9)

Sampling Point Healdsburg station is located in Section 22 of Township 9 North, Range 9 West, Mt. Diablo Base and Meridian. Monthly water samples were collected from the left bank at the USGS gage, 2 miles east of Healdsburg and 3.5 miles upstream from Dry Creek.

Period of Record April 1951 through December 1959.

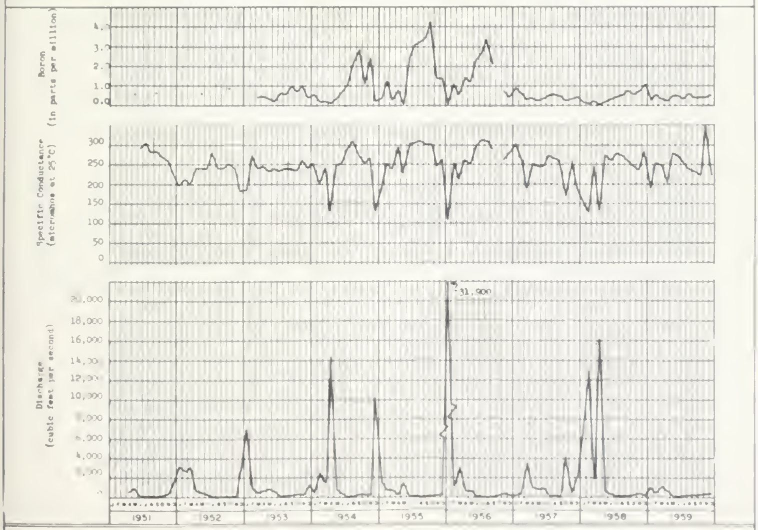
Water Quality Characteristics Russian River water at Station 9 is, with the exception of boron, good to excellent in quality, calcium bicarbonate to magnesium bicarbonate in character, ranges from soft to moderately hard and meets drinking water standards for mineral content. Prior to 1956, boron concentrations often exceeded the limit for class 1, and at times class 2, irrigation water. The major source of excess boron was detected to be an industrial discharge, which was discontinued in September 1956. Following its removal, boron concentrations have remained below 1.0 ppm. Dissolved minerals are found in slightly higher concentrations (averaging about 70 micromhos) at Station 9 than at the upstream Station 8a.

Significant Water Quality Changes During 1959 the water improved in quality with respect to boron. The boron limit for class 1 irrigation water was exceeded only twice, in February and August, with 0.6 ppm reported each month. The continuation of boron concentrations of less than 1.0 ppm during 1959 indicates that the boron content in this water has been stabilizing since the discontinuance of the degrading industrial waste discharge.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	344	108	344	190
Temperature in °F	80	45	77	53
Dissolved oxygen in parts per million	13.2	7.0	1[illegible].6	7.6
Percent saturation	119	70	107	83
pH	8.6	6.3	7.9	7.3
Mineral constituents in parts per million				
Calcium (Ca)	31	10	2[illegible]	23
Magnesium (Mg)	16	5.1	16	12
Sodium (Na)	19	3.2	19	6.9
Potassium (K)	3.2	0.8	1.5	1.4
Carbonate (CO_3)	6	0.[illegible]	[illegible]	0.0
Bicarbonate (HCO_3)	179	58	179	75
Sulfate (SO_4)	14	2.9	8.6	7.2
Chloride (Cl)	14	1.5	14	4.2
Nitrate (NO_3)	1.6	[illegible]	1.[illegible]	0.0
Fluoride (F)	0.3	0.[illegible]	0.1	0.0
Boron (B)	4.3	0.06	0.6	0.[illegible]
Silica (SiO_2)	98	5.6	13	11
Total dissolved solids in parts per million	204	64	204	119
Percent sodium	36	11	23	12
Hardness as $CaCO_3$ in parts per million				
Total	142	46	142	78
Noncarbonate	16	0.0	16	0.0
Turbidity	1,000	0.[illegible]	40	3
Coliform in most probable number per milliliter	>7,000.	0.06	2,100.	0.13
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved beta	[illegible]	[illegible]	[illegible]	[illegible]
Solid beta	[illegible]	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS



RUSSIAN RIVER NEAR HEALDSBURG (STA. 9)

RUSSIAN RIVER AT GUERNEVILLE (STA. 10)

Sampling Point Station 10 is located in Section 32 of Township 8 North, Range 10 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected at the State Highway 12 bridge in Guerneville, and about 13 miles upstream from the mouth.

Period of Record April 1951 through December 1959.

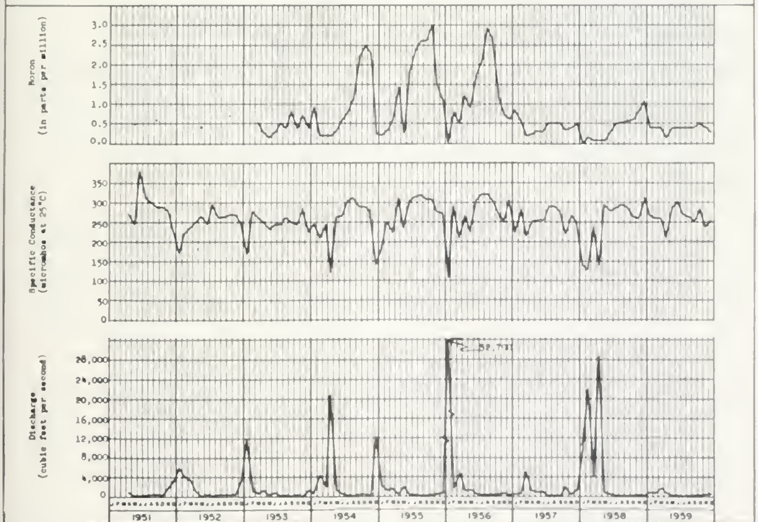
Water Quality Characteristics Water at Station 10 is calcium-magnesium bicarbonate in character, soft to very hard, and within drinking water standards for mineral content. As at all stations in the Russian River Basin, boron concentrations have often been in excess of class 1 irrigation limits. Prior to 1957, boron was frequently found in excess of class 2 requirements. After source of excess boron mentioned in the discussion of Station 9 was removed in September 1956, boron concentrations decreased significantly. During 1957 and 1958 the maximum concentration reported was 1.1 ppm, as contrasted to the maximum for the period of record of 3.0 ppm reported in October 1955. An average increase in conductivity of about 15 micromhos occurs between Stations 9 and 10 indicating only a slight increase in the amount of mineral constituents.

Significant Water Quality Changes During 1959 boron was not detected in excess of the 0.5 ppm limit for class 1 irrigation water at Station 10. The low boron concentrations at this station substantiate the conclusion, as stated in the discussion of Station 9, that the boron content of Russian River waters is approaching a steady state.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum [illegible]	Minimum [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	44	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	1.4	[illegible]	[illegible]
Percent saturation	1[illegible]	[illegible]	10[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	1[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	16	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible].9	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	0.4
Fluoride (F)	[illegible]	[illegible]	[illegible].1	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	1[illegible]	[illegible]
Total dissolved solids in parts per million	[illegible]26	[illegible]	178	12[illegible]
Percent sodium	[illegible]3	11	1[illegible]	12
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]32	[illegible]	147	95
Noncarbonate	37	0.[illegible]	13	0.[illegible]
Turbidity	1,000	0.[illegible]	91	2[illegible]
Coliform in most probable number per milliliter	7,[illegible]00.	0.045	62[illegible].	[illegible].045
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.81	0.[illegible]	0.30	0.1[illegible]
Solid alpha	[illegible].01	0.[illegible]	0.21	[illegible]
Dissolved beta	23.27	0.00	0.[illegible]	[illegible]
Solid beta	9.4	[illegible]	4.[illegible]	[illegible].00

WATER QUALITY VARIATIONS



RUSSIAN RIVER AT GUERNEVILLE (STA. 10)

RUSSIAN RIVER, EAST FORK AT POTTER VALLEY POWERHOUSE (STA. 10a)

Sampling Point Station 10a is located in Section 6 of Township 17 North, Range 11 West, Mt. Diablo Base and Meridian. Monthly water samples for quality analyses were collected from the tailrace of the PG&E powerhouse, 3 miles northeast of the town of Potter Valley.

Period of Record June 1951 through December 1959.

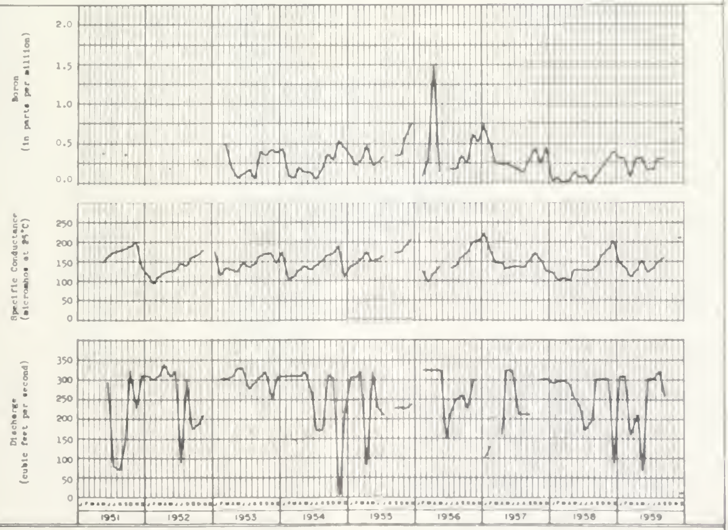
Water Quality Characteristics Water at Station 10a is calcium bicarbonate in character, soft to moderately hard and within drinking water standards for mineral content. As at Station 8a, boron frequently causes the water to be class 2 for irrigation use. Water at this station is comprised of water exported from the Eel River Basin. Boron in waters at this station originates from geologic formations and mineralized springs along the upper reaches of Eel River.

Significant Water Quality Changes Radioactivity was significantly higher during 1959 than during past years of record with the exception of May 1953 when 34.6 μμc/l total activity were reported. The total activity in May 1959 was reported as 24.3 μμc/l and 24.7 μμc/l in September.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	114
Temperature in °F	[illegible]	41	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	19
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	116	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	15	6.5	11	[illegible]
Total dissolved solids in parts per million	[illegible]	[illegible]	125	68
Percent sodium	[illegible]	[illegible]	16	11
Hardness as $CaCO_3$ in parts per million				
Total	102	42	94	54
Noncarbonate	8	[illegible]	8	0.0
Turbidity	190	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	[illegible]	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved beta	[illegible]	[illegible]	[illegible]	[illegible]
Solid beta	[illegible]	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS



RUSSIAN RIVER, EAST FORK AT POTTER VALLEY POWERHOUSE (STA. 10a)

STREAM

NORTH COA

Station Number	
1	Klamath
1a	Shasta R
1b	Scott Ri
1c	Klamath
1d	Butte Cr
1e	Antelope
2	Klamath
2a	Salmon R
2b	Klamath
3	Klamath
3a	Smith Ri
3b	Redwood
4	Trinity
4a	Trinity
4b	Trinity
5	Eel Rive
5a	Van Duze
5b	Outlet C
5c	Eel Rive
5d	Eel Rive
6	Eel Rive
6a	Mad Rive
7	Eel Rive
7a	Mattole
8a	Russian
8b	Navarro
8c	Big Rive
9	Russian
9a	Gualala
10	Russian
10a	Russian Valley
10c	Noyo Riv

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF RESOURCES PLANNING

QUALITY OF SURFACE WATERS IN CALIFORNIA, 1959

STREAM SAMPLING STATIONS
NORTH COASTAL REGION (NO.1)

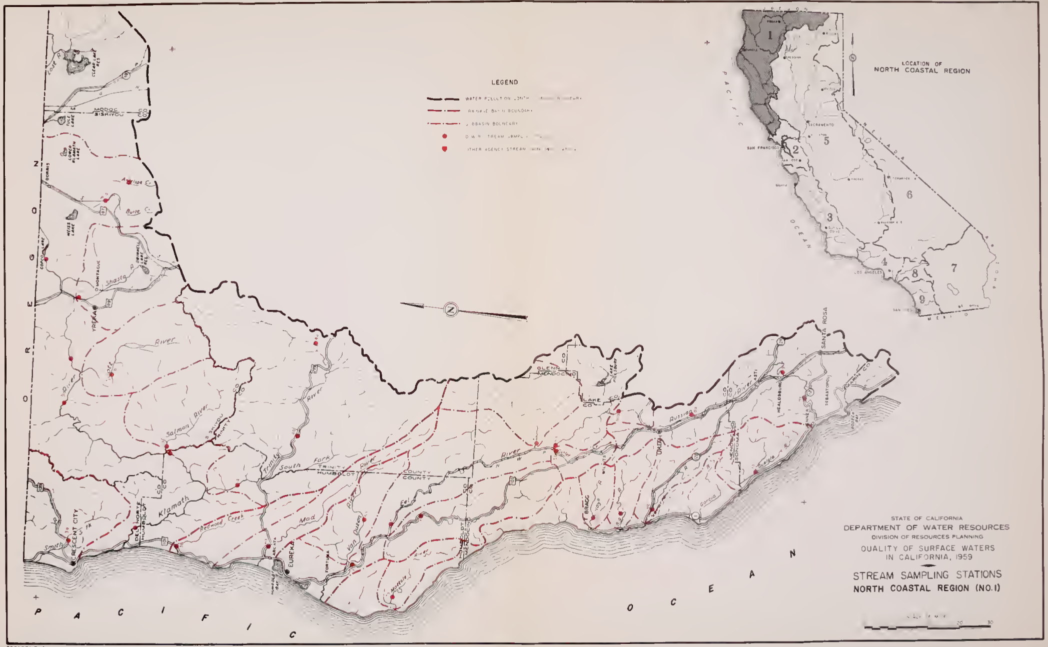
PLATE I

STREAM SAMPLING STATIONS

NORTH COASTAL REGION (NO. 1)

Station Number	Station Name
1	Klamath River near Copco
1a	Shasta River near Yreka
1b	Scott River near Fort Jones
1c	Klamath River above Bamburg Reservoir Site
1d	Butte Creek near MacDoel
1e	Antelope Creek near Tennant
2	Klamath River at Somesbar
2a	Salmon River at Somesbar
2b	Klamath River near Seiad Valley
3	Klamath River near Klamath
3a	Smith River near Crescent City
3b	Redwood Creek at Orick
4	Trinity River near Hoopa
4a	Trinity River at Lewiston
4b	Trinity River near Burnt Ranch
5	Eel River near McCann
5a	Van Duzen River near Bridgeville
5b	Outlet Creek near Longvale
5c	Eel River, Middle Fork at Dos Rios
5d	Eel River near Dos Rios
6	Eel River at Scotia
6a	Mad River near Arcata
7	Eel River, South Fork near Miranda
7a	Mattole River near Petrolia
8a	Russian River near Hopland
8b	Navarro River near Navarro
8c	Big River near Mouth
9	Russian River near Healdsburg
9a	Gualala River, South Fork near Annapolis
10	Russian River at Guerneville
10a	Russian River, East Fork at Potter Valley Powerhouse
10c	Noyo River near Fort Bragg

44460



DEPARTMENT OF WATER RESOURCES 1959

San Francisco Bay Region (No. 2)

One of the most highly industrialized regions of California is encompassed by the boundaries of the San Francisco Bay Region. This region contains approximately 4,400 square miles in the north central coastal portion of California and includes the industrial and municipal complexes of the City of San Francisco, the Peninsula, and East Bay communities.

Prominent among the physical features of the region is the outstanding natural harbor consisting of San Francisco Bay, San Pablo Bay and that portion of Suisun Bay below Antioch. This harbor is the focal point of numerous valley basins drained by the watercourses tributary to the bay. These valleys are interspersed and parallel the mountains and foothills of the Coast Range, which rise from sea level to elevations of over 4,000 feet and cover two-thirds of the bay region.

Estimated mean annual surface runoff is 1,245,000 acre-feet in this region. To maintain a surveillance on quality of surface runoff in this area, five monitor stations are maintained on five streams. The monitored streams and the number of the station on each (in parentheses) are as follows:

- Napa River (1)
- Alameda Creek (1)
- Arroyo del Valle (1)
- Coyote Creek (1)
- Los Gatos Creek (1)

Analyses of samples collected from streams in the San Francisco Bay Region indicate bicarbonate type waters with generally no predominant cation. These waters are suitable for domestic and most industrial uses and range from class 1 to 2 for irrigation. Although precipitation during 1959 was generally below normal in this region, only minor changes in quality were detected by the surface water monitoring program.

San Francisco Bay Region (No. 2)

One of the most highly industrialized regions of California is encompassed by the boundaries of the San Francisco Bay Region. This region contains approximately 4,400 square miles in the north central coastal portion of California and includes the industrial and municipal complexes of the City of San Francisco, the Peninsula, and East Bay communities.

Prominent among the physical features of the region is the outstanding natural harbor consisting of San Francisco Bay, San Pablo Bay and that portion of Suisun Bay below Antioch. This harbor is the focal point of numerous valley basins drained by the watercourses tributary to the bay. These valleys are interspersed and parallel the mountains and foothills of the Coast Range, which rise from sea level to elevations of over 4,000 feet and cover two-thirds of the bay region.

Estimated mean annual surface runoff is 1,245,000 acre-feet in this region. To maintain a surveillance on quality of surface runoff in this area, five monitor stations are maintained on five streams. The monitored streams and the number of the station on each (in parentheses) are as follows:

- Napa River (1)
- Alameda Creek (1)
- Arroyo del Valle (1)
- Coyote Creek (1)
- Los Gatos Creek (1)

Analyses of samples collected from streams in the San Francisco Bay Region indicate bicarbonate type waters with generally no predominant cation. These waters are suitable for domestic and most industrial uses and range from class 1 to 2 for irrigation. Although precipitation during 1959 was generally below normal in this region, only minor changes in quality were detected by the surface water monitoring program.

Napa River Basin

Napa River drains a watershed area of 417 square miles located at the north end of San Francisco Bay Region. The river flows southward through Napa Valley and discharges into San Pablo Bay. Average annual discharge of Napa River is estimated to be 186,300 acre-feet.

Napa River Basin includes approximately 157 square miles of fertile valley and mesa land. Agricultural pursuits are the major users of water and are the dominant economic enterprises of the basin. However, industrial and urban development has accelerated rapidly in the last decade and these are playing a proportionately larger role in the economy of the valley.

Numerous wastes from individual domestic, industrial and agricultural sources, and several community collection systems discharge into Napa River. None of these waste discharges individually exceed 0.3 mgd, except for the Napa County Sanitation District discharge of 4.1 mgd.

A surface water sampling station is maintained on Napa River near St. Helena to monitor quality of runoff from this basin.

NAPA RIVER NEAR ST. HELENA (STA. 72)

Sampling Point Station 72 is located in Section 32 of Township 8 North, Range 5 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected at the center of the stream, from the highway bridge 0.2 mile downstream from the USGS water stage recorder. This gage is located 1.0 mile east of Highway 128 and 2.5 miles southeast of St. Helena.

Period of Record December 1951 through December 1959.

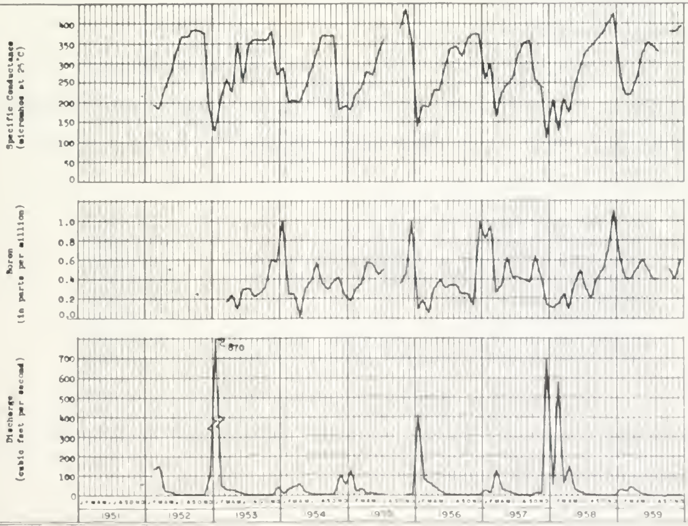
Water Quality Characteristics Chemical classification of past analyses show Napa River, at this station, to vary in character from calcium bicarbonate to calcium-sodium bicarbonate. Flow past Station 72 has met the criteria for class 1 irrigation supply, except for boron which generally ranges from 0.1 ppm to 1.0 ppm. Boron in waters entering Napa River is porbably derived from the geologic formations comprising the earth's mantle in this watershed. Hardness ranges from soft to moderately hard and concentrations of minerals in this water are within the limits for drinking water.

Significant Water Quality Changes During September 1959 the stream was dry and comprehensive analysis usually performed on the sample collected that month was omitted.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	433	108	395	218
Temperature in °F	80	45	80	50
Dissolved oxygen in parts per million	15.0	5.5	13.2	6.2
Percent saturation	175	60	162	69
pH	8.2	6.8	7.9	7.1
Mineral constituents in parts per million				
Calcium (Ca)	38	11	26	
Magnesium (Mg)	19	4.9	11	
Sodium (Na)	32	6.6	26	16
Potassium (K)	8.3	1.8	3.4	
Carbonate (CO_3)	26	0.0	2	0.0
Bicarbonate (HCO_3)	210	44	196	80
Sulfate (SO_4)	44	4	17	
Chloride (Cl)	45	5.0	34	11
Nitrate (NO_3)	6.2	0.5	2.1	
Fluoride (F)	0.5	0.1	0.5	
Boron (B)	1.1	0.05	0.6	0.4
Silica (SiO_2)	42	14	38	
Total dissolved solids in parts per million	288	71	263	145
Percent sodium	41	15	38	21
Hardness as $CaCO_3$ in parts per million				
Total	169	37	158	70
Noncarbonate	30	0.0	20	0.0
Turbidity	70	0.0	60	0.0
Coliform in most probable number per milliliter	>7,000.	<0.045	7,000.	0.62
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.38	0.00	0.21	
Solid alpha	0.48	0.00	0.29	
Dissolved beta	17.4	0.00	1.88	
Solid beta	8.82	0.00	[illegible]	

WATER QUALITY VARIATIONS



NAPA RIVER NEAR SAINT HELENA (STA. 72)

Alameda Creek Basin

Alameda Creek watershed is located east of and drains into the southern arm of San Francisco Bay. The drainage basin encompasses about 272 square miles of mountains and foothills of the Diablo Range and 157 square miles of valley and mesa lands. Mean seasonal natural runoff for Alameda Creek Basin is about 130,700 acre-feet. There are numerous water supply developments in this watershed which greatly affect the runoff characteristics of Alameda Creek.

Agricultural development is still significant in the valley areas of the basin; however, urban, industrial, and commercial growth has been given considerable impetus by the expanding East Bay economy. Surface water in the basin is insufficient to meet present demands, and additional imported water supplies will be needed to sustain the present rate of growth.

Numerous waste discharges, originating from industrial and municipal developments, are discharged into the Alameda Creek watershed waterways. A list of the major waste discharges in this watershed and their daily outflows are:

City of Livermore	1.0 mgd
City of Pleasanton	0.6 mgd
Holly Sugar Company at Alvarado, California	1.6 mgd
Pacific States Steel, Niles, California	70.5 mgd
Parks Air Force Base	0.5 mgd
Rickenbacker Dairy	0.32-1.29 mgd
Union Sanitary District, Fremont, California	70.5 mgd
West Vaco Chemical Company, Newark, California	1.34 mgd

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed.

ALAMEDA CREEK NEAR NILES (STA. 73)

Sampling Point The sampling point for this station is located in Section 15, Township 4 South, Range 1 West, Mt. Diablo Base and Meridian. Monthly water samples were collected from the right bank at the concrete control structure of the USGS gaging station located 0.2 mile downstream from the railroad bridge and 1.2 miles northeast of Niles.

Period of Record December 1951 through December 1959. The stream is dry a portion of each year; consequently, data are not available for all months.

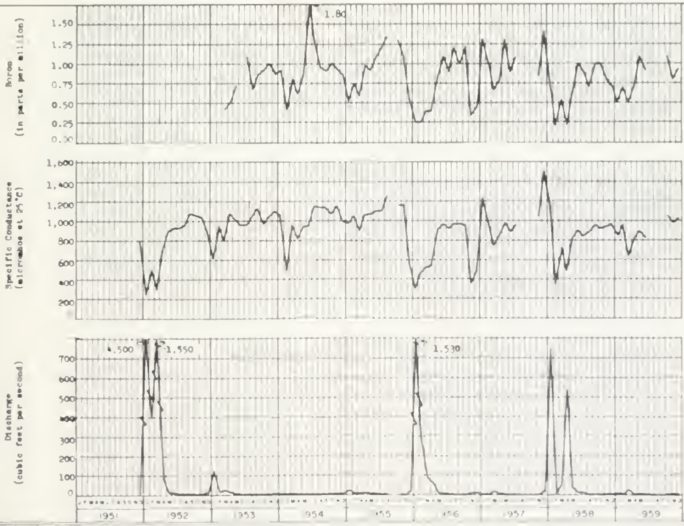
Water Quality Characteristics Since inception of a monitoring station on this stream the water has been bicarbonate in character with none of the major cations, calcium, magnesium, or sodium, being predominant. Due to fluctuation of electrical conductivity, concentrations of total dissolved solids, or boron, singly or in combination, this water ranges from class 1 to class 2 for irrigation use. The source of boron originates from springs in the north and western portions of the watershed. The water is moderate to very hard. From the standpoint of mineral constituents, this water meets the criteria for domestic use.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	1,500	246	1,060	640
Temperature in °F	76	41	74	44
Dissolved oxygen in parts per million	17.0	6.3	12.5	8.4
Percent saturation	158	54	108	88
pH	8.5	7.0	8.1	7.5
Mineral constituents in parts per million				
Calcium (Ca)	98	5.7	63	
Magnesium (Mg)	79	12	42	
Sodium (Na)	136	14	92	36
Potassium (K)	16	1.7	3.4	
Carbonate (CO_3)	23	0.0	0.0	0.0
Bicarbonate (HCO_3)	479	110	354	241
Sulfate (SO_4)	150	99	140	
Chloride (Cl)	210	9	82	40
Nitrate (NO_3)	4.1	0.0	0.0	
Fluoride (F)	0.4	0.0	0.2	
Boron (B)	1.80	0.21	1.1	0.5
Silica (SiO_2)	21	2.9	2.9	
Total dissolved solids in parts per million	915	150	646	390
Percent sodium	38	20	35	24
Hardness as $CaCO_3$ in parts per million				
Total	474	56	396	252
Noncarbonate	366	5	125	36
Turbidity	550	0.3	30	1
Coliform in most probable number per milliliter	7,000.	0.045	230.	0.06
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.42	0.00	0.41	
Solid alpha	2.82	0.00	0.62	
Dissolved beta	13.47	0.00	2.25	
Solid beta	12.44	0.00	0.31	

WATER QUALITY VARIATIONS



ALAMEDA CREEK NEAR NILES (STA. 73)

ARROYO DEL VALLE AT VETERANS ADMINISTRATION HOSPITAL (STA. 71)

Sampling Point The location of this station is Section 4, Township 4 South, Range 2 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank at the USGS gage, adjacent to Arroyo Road. The gage is located immediately upstream from the Veterans Administration Hospital bridge, approximately 4.5 miles south of Livermore.

Period of Record July 1958 through December 1959. Arroyo del Valle is dry during a portion of each year and water quality data are not available for all months.

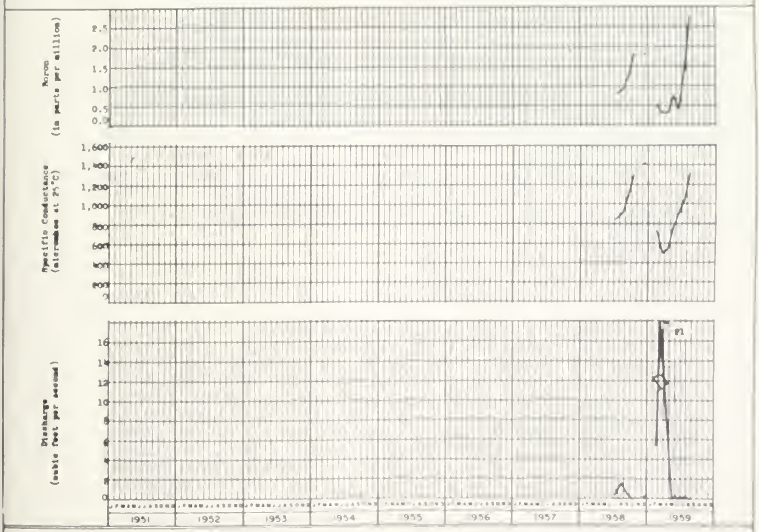
Water Quality Characteristics A review of available analyses show this water to consistently exhibit a bicarbonate characteristic; however, no specific cation is predominant. Calcium, magnesium, and sodium are present in significant amounts; and in approximately equal equivalents per million. With the exception of a single boron determination of 2.7 ppm in August 1959, this water has met class 2 irrigation criteria. Although the water is very hard, it meets the limits for mineral constituents in drinking water.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	476	1,320	476
Temperature in °F	84	52	68	[illegible]
Dissolved oxygen in parts per million	[illegible]	4.1	[illegible]	4.5
Percent saturation	[illegible]	41	109	48
pH	8.1	7.3	8.1	7.4
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	20	83	20
Magnesium (Mg)	64	22	64	22
Sodium (Na)	142	20	142	20
Potassium (K)	8.6	1.7	8.6	1.7
Carbonate (CO_3)	8	[illegible]	8	0.0
Bicarbonate (HCO_3)	459	221	420	221
Sulfate (SO_4)	169	55	130	55
Chloride (Cl)	159	15	[illegible]	15
Nitrate (NO_3)	3.5	[illegible]	3.5	0.0
Fluoride (F)	0.4	0.0	0.4	0.0
Boron (B)	2.7	0.3	2.7	0.3
Silica (SiO_2)	34	13	34	13
Total dissolved solids in parts per million	870	288	820	288
Percent sodium	43	17	43	17
Hardness as $CaCO_3$ in parts per million				
Total	526	210	[illegible]	210
Noncarbonate	150	0.0	68	0.0
Turbidity	See 1959	See 1959	0.5	
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.52	0.08	0.52	
Solid alpha	0.62	0.00	0.62	
Dissolved beta	6.18	5.10	5.10	
Solid beta	3.86	[illegible]	[illegible]	

WATER QUALITY VARIATIONS



ARROYO DEL VALLE AT VETERANS HOSPITAL (STA. 71)

Coyote Creek Basin

Coyote Creek originates in the Diablo Range in the southeast corner of the San Francisco Region. It flows northeasterly through a portion of Santa Clara Valley and discharges into San Francisco Bay. Coyote Creek Basin drains 404 square miles of which approximately one-fourth is valley and mesa lands. The creek has a total annual flow of about 89,000 acre-feet.

Land use in the valley areas of this basin is devoted to intensive agricultural production. There has been considerable recent industrial development in the vicinities of San Jose and Milpitas, accompanied by a large population growth.

Several waste discharges are tributary to Coyote Creek. Most of these discharges are of minor quantities. The significant waste discharges are the outflow of the primary treatment plant receiving industrial and domestic waste from the City of San Jose which exceeds 20 million gallons per day (mgd) and the Milpitas Sanitary District which discharges about 1.0 mgd from its secondary treatment plant.

A surface water sampling station is maintained on Coyote Creek near Madrone to monitor quality of runoff from this basin.

COYOTE CREEK NEAR MADRONE (STA. 82)

Sampling Point The station is located in Section 9, Township 9 South, Range 3 East, Mt. Diablo Base and Meridian, and lies in the northwest corner of the San Jose Grant. Monthly water samples were obtained from the right bank at the USGS gaging station, 0.2 mile downstream from the county road bridge, 2.8 miles northeast of Madrone.

Period of Record January 1952 through December 1959.

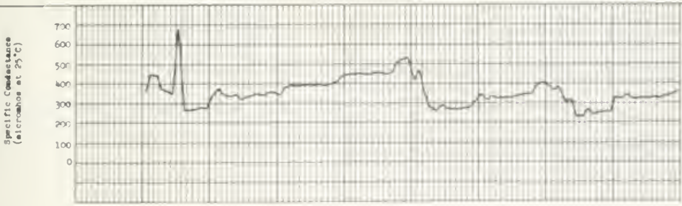
Water Quality Characteristics Past chemical analyses of Coyote Creek near Madrone show it to be characteristically a calcium-magnesium type water. This water consistently meets the criteria for a class 1 irrigation supply and the mineral constituent standards for drinking water. Water at this station ranges from slightly hard to very hard with quality fluctuations throughout the year being relatively small.

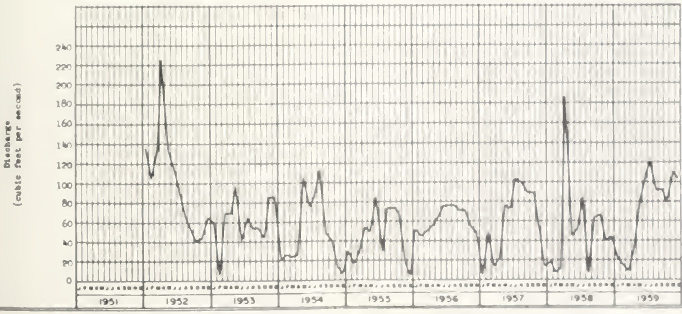
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum 1959	Minimum 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	321
Temperature in °F	72	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	9.7
Percent saturation	[illegible]	[illegible]	[illegible]	98
pH	8.9	[illegible]	[illegible]	7.5
Mineral constituents in parts per million				
Calcium (Ca)	53	26	34	32
Magnesium (Mg)	29	[illegible]	[illegible]	14
Sodium (Na)	24	[illegible]	17	12
Potassium (K)	12	[illegible]	[illegible]	1.2
Carbonate (CO_3)	18	0.0	[illegible]	[illegible]
Bicarbonate (HCO_3)	340	105	184	146
Sulfate (SO_4)	45	20	32	27
Chloride (Cl)	25	5.5	25	8.2
Nitrate (NO_3)	4.4	[illegible]	[illegible]	[illegible]
Fluoride (F)	0.5	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	0.2	0.0
Silica (SiO_2)	16	4.5	11	5.8
Total dissolved solids in parts per million	394	133	211	186
Percent sodium	21	14	20	16
Hardness as $CaCO_3$ in parts per million				
Total	322	90	161	137
Noncarbonate	76	0.0	30	[illegible]
Turbidity	330	[illegible]	35	1
Coliform in most probable number per milliliter	>7,000.	[illegible]	620.	0.23
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.62	[illegible]	[illegible]	0.19
Solid alpha	8.16	[illegible]	0.62	0.19
Dissolved beta	17.44	[illegible]	8.56	0.00
Solid beta	11.46	[illegible]	11.46	2.95

WATER QUALITY VARIATIONS





COYOTE CREEK NEAR MADRONE (STA. 82)

Los Gatos Creek Basin

Los Gatos Creek watershed encompasses approximately 65 square miles in the southwestern portion of the San Francisco Bay Region. Los Gatos Creek originates in the Santa Cruz Mountains and flows northeasterly a distance of about 20 miles to join Guadalupe River at the City of San Jose. Mean seasonal runoff from this basin is about 35,800 acre-feet.

Due to mountainous terrain along the upper reaches of Los Gatos Creek, development is almost exclusively confined to the drainage area tributary to its lower ten-mile reach. Land use is largely urban, interspersed with light industry. Land devoted to agriculture in this watershed has diminished rapidly in the past decade and only scattered orchards and vineyards remain.

Numerous waste discharges enter Los Gatos Creek in minor quantities. There are no waste discharges in excess of 0.5 mgd being disposed of directly into the waterway of Los Gatos Creek.

A surface water monitoring station is maintained on Los Gatos Creek immediately above the community of Los Gatos.

LOS GATOS CREEK AT LOS GATOS (STA. 74)

Sampling Point Station 74 is located in Section 29, Township 8 South, Range 1 West, Mt. Diablo Base and Meridian. Monthly water samples were collected from the left bank at the USGS gage about 0.75 mile upstream from Los Gatos, approximately 0.25 mile below Lexington Dam. This point is 10.5 miles above the mouth of the creek.

Period of Record December 1951 through December 1959.

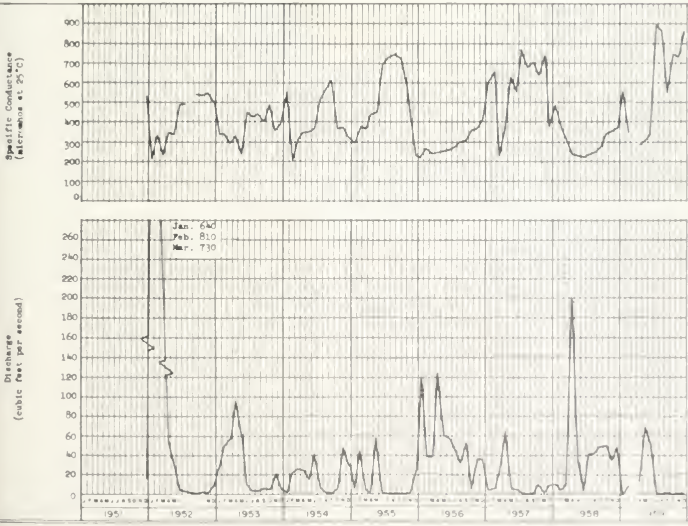
Water Quality Characteristics A review of past analyses reveals that this stream has a bicarbonate characteristic, and calcium and magnesium are its principal cations with neither consistently predominant. Los Gatos Creek water at this station meets the requirements for class 1 irrigation water (except for one boron determination of 1.0 ppm in 1956), ranges from slightly hard to very hard, and contains mineral concentrations within the limits for drinking water.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	203	[illegible]	[illegible]
Temperature in °F	79	43	79	43
Dissolved oxygen in parts per million	13.4	7.6	12.[illegible]	7.6
Percent saturation	118	79	[illegible]	81
pH	8.3	6.8	7.[illegible]	7.[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	85	18	[illegible]	32
Magnesium (Mg)	39	7.7	[illegible]	12
Sodium (Na)	30	6.[illegible]	[illegible]	9.7
Potassium (K)	3.9	0.8	2.[illegible]	0.8
Carbonate (CO_3)	13	0.0	2	[illegible]
Bicarbonate (HCO_3)	428	69	428	101
Sulfate (SO_4)	103	13	7[illegible]	49
Chloride (Cl)	67	3.6	23	3.6
Nitrate (NO_3)	4.4	[illegible]	2.7	0.5
Fluoride (F)	0.4	0.1	0.1	0.1
Boron (B)	0.25	[illegible]	.1	[illegible]
Silica (SiO_2)	38	11	15	11
Total dissolved solids in parts per million	546	124	546	176
Percent sodium	29	12	[illegible]	12
Hardness as $CaCO_3$ in parts per million				
Total	471	60	471	124
Noncarbonate	120	0.0	120	41
Turbidity	900	0.4	180	[illegible]
Coliform in most probable number per milliliter	77,000.	0.06	2,400	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.52	0.00	0.52	0.00
Solid alpha	1.30	0.00	0.62	0.19
Dissolved beta	17.44	0.00	3.[illegible]7	0.60
Solid beta	18.24	0.00	6.92	3.46

WATER QUALITY VARIATIONS



LOS GATOS CREEK AT LOS GATOS (STA. 74)

STREA

SAN FRANC

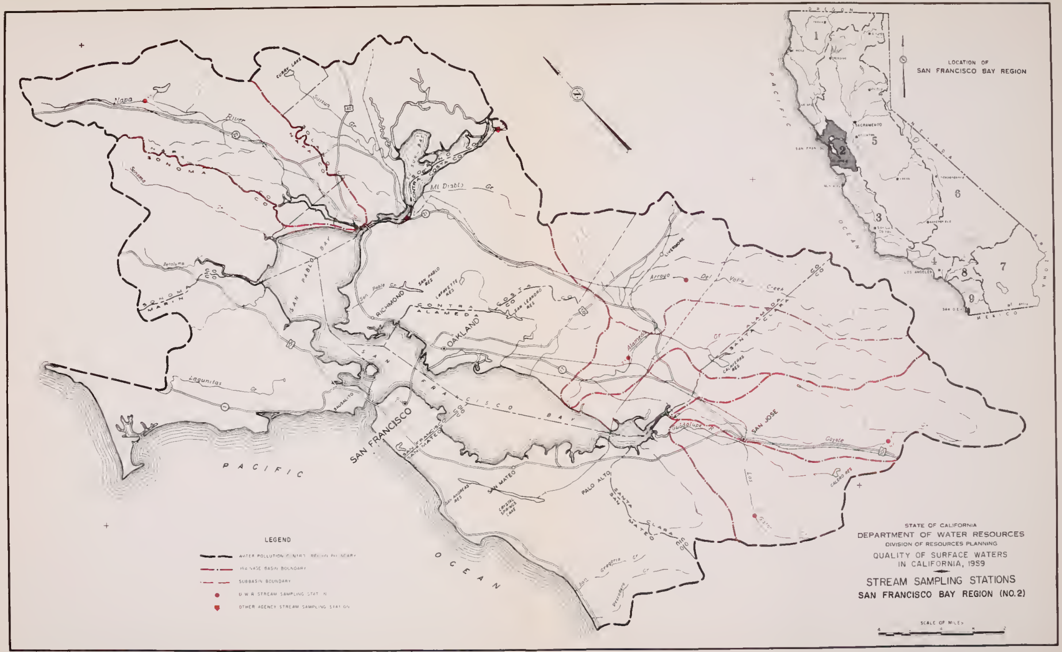
Station Number	
15c	Sacram
28a	Carqui
71	Arroyo Hosp
72	Napa R
73	Alamed
74	Los Ga
82	Coyote

STREAM SAMPLING STATIONS

SAN FRANCISCO BAY REGION (NO. 2)

Station Number	Station Name
15c	Sacramento River at Mallard Slough
28a	Carquinez Strait at Martinez
71	Arroyo del Valle at Veterans Administration Hospital
72	Napa River near Saint Helena
73	Alameda Creek near Nilea
74	Los Gatos Creek at Los Gatoa
82	Coyote Creek near Madrone

44460



DEPARTMENT OF WATER RESOURCES 1959

Central Coastal Region (No. 3)

The Central Coastal Region contains approximately 11,000 square miles of coastal valleys and mountain ranges. The region extends 220 miles north-south from the southern boundary of Pescadaro Creek Basin (about 35 miles south of the City of San Francisco) to the northeastern boundary of Rincon Creek Basin (approximately 70 miles north of Los Angeles).

Valley and mesa areas cover over 2,000 square miles of this region, with the valley fill along Salinas River comprising over 40 percent of these lands. The coast line is rocky and rugged except for a few river deltas. Mountain peaks in excess of 5,000 feet elevation exist in most of the ranges with Sawmill Mountain at the head of Santa Maria River reaching 8,750 feet.

Mean seasonal runoff from this region is 2,447,600 acre-feet. Principal hydrographic units in the Central Coastal Region include the San Lorenzo, Pajaro, Salinas, Carmel, Santa Maria, and Santa Ynez. In the Central Coastal Region (No. 3) 14 sampling stations are being monitored to maintain a surveillance on quality of surface waters. The monitored streams and the number of stations on each (in parentheses) are presented in the following tabulation:

San Lorenzo River (1)
Soquel Creek (1)
Pajaro River (1)
Uvas Creek (1)
San Benito River (1)
Salinas River (3)

Nacimiento River (1)
San Antonio Creek (1)
Carmel River (1)
Cuyama River (1)
Santa Ynez River (2)

The upper reaches of the Salinas, Nacimiento, Cuyama and Santa Ynez Rivers, and San Antonio Creek are in Southern California and will be discussed in Part II of this bulletin.

Central Coastal Region (No. 3)

The Central Coastal Region contains approximately 11,000 square miles of coastal valleys and mountain ranges. The region extends 220 miles north-south from the southern boundary of Pescadaro Creek Basin (about 35 miles south of the City of San Francisco) to the northeastern boundary of Rincon Creek Basin (approximately 70 miles north of Los Angeles).

Valley and mesa areas cover over 2,000 square miles of this region, with the valley fill along Salinas River comprising over 40 percent of these lands. The coast line is rocky and rugged except for a few river deltas. Mountain peaks in excess of 5,000 feet elevation exist in most of the ranges with Sawmill Mountain at the head of Santa Maria River reaching 8,750 feet.

Mean seasonal runoff from this region is 2,447,600 acre-feet. Principal hydrographic units in the Central Coastal Region include the San Lorenzo, Pajaro, Salinas, Carmel, Santa Maria, and Santa Ynez. In the Central Coastal Region (No. 3) 14 sampling stations are being monitored to maintain a surveillance on quality of surface waters. The monitored streams and the number of stations on each (in parentheses) are presented in the following tabulation:

San Lorenzo River (1)
Soquel Creek (1)
Pajaro River (1)
Uvas Creek (1)
San Benito River (1)
Salinas River (3)
Nacimiento River (1)
San Antonio Creek (1)
Carmel River (1)
Cuyama River (1)
Santa Ynez River (2)

The upper reaches of the Salinas, Nacimiento, Cuyama and Santa Ynez Rivers, and San Antonio Creek are in Southern California and will be discussed in Part II of this bulletin.

San Lorenzo River Basin

The San Lorenzo River Basin drains an area of 137 square miles in the northwest corner of the Central Coastal Region. The river flows north to south and discharges into Monterey Bay at the City of Santa Cruz.

The San Lorenzo River watershed is generally mountainous with only seven square miles being identified as valley or mesa lands. Urban and light industrial development are prominent in the Santa Cruz area. Along the upper reaches of the river, recreation, a few lumber mills, and resort facilities support the economy of the area. Natural mean seasonal runoff is estimated to be 125,100 acre-feet in this basin.

Waste discharges entering San Lorenzo Basin waterways are not of significant quantity. Several gravel wash discharges of about 0.10 mgd constitute the only notable source of possible impairment under present development.

A surface water sampling station is maintained on San Lorenzo River at Big Trees to monitor quality of runoff from this basin.

SAN LORENZO RIVER AT BIG TREES NEAR FELTON (STA. 75)

Sampling Point The sampling point for this station is located in Section 26, Township 10 South, Range 2 West, Mt. Diablo Base and Meridian, Canada del Rincon Grant. Monthly grab samples were collected from the right bank at Sequoia Gardens Resort, 1.7 miles south of Felton and east of State Highway 9.

Period of Record December 1951 through December 1959.

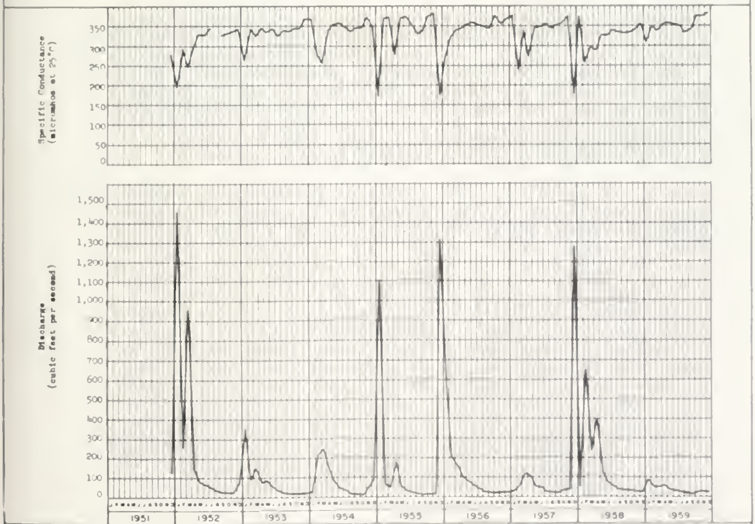
Water Quality Characteristics A review of past analyses of San Lorenzo River show it to be characterized by a calcium bicarbonate type water, relatively low in total dissolved solids, and slightly to moderately hard. During the period of record these waters have consistently qualified as a class 1 irrigation water. Likewise, concentrations of mineral constituents meet the criteria for domestic uses. The City of Santa Cruz uses San Lorenzo River water as a source of municipal supply.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	168	380	111
Temperature in °F	71	41	67	41
Dissolved oxygen in parts per million	[illegible]	8.5	11.8	9.2
Percent saturation	126	[illegible]	112	93
pH	8.2	[illegible]	[illegible]	7.1
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	19	[illegible]	19
Magnesium (Mg)	12	[illegible]	8.5	6.9
Sodium (Na)	[illegible]	[illegible]	28	17
Potassium (K)	2.7	1.4	2.1	1.8
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	48	150	88
Sulfate (SO_4)	[illegible]	24	[illegible]	24
Chloride (Cl)	32	6.5	32	16
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	0.09	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	0.0
Silica (SiO_2)	30	20	27	20
Total dissolved solids in parts per million	[illegible]	102	231	[illegible]
Percent sodium	31	20	31	22
Hardness as $CaCO_3$ in parts per million				
Total	145	59	140	114
Noncarbonate	42	8	42	14
Turbidity	[illegible]	[illegible]	50	1
Coliform in most probable number per milliliter	>7,000.	[illegible]	7,000	1.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	1.73	[illegible]	[illegible]	0.17
Dissolved beta	15.31	[illegible]	7.74	3.11
Solid beta	7.32	[illegible]	5.80	[illegible]

WATER QUALITY VARIATIONS



SAN LORENZO RIVER AT BIG TREES (STA. 75)

Soquel Creek Basin

Soquel Creek drains an area of 91 square miles immediately south of the San Lorenzo River Basin in the northwest portion of the Central Coastal Region. Soquel Creek watershed has a mean annual runoff of about 63,500 acre-feet. Topography in the creek changes along its entire reach. The river originates in rugged mountains and flows southward through a gradual transition to rolling hills and finally, at the edge of the Pacific Ocean, it traverses a marine terrace.

Development in the river basin is primarily concentrated along the marine terrace bordering the lower reaches. Urban, agricultural, and light industrial development combine to sustain the growing population of the area.

Waste discharges from present development are minor and have not created notable impairment problems. A sand and gravel borrow area is located in the stream bed upstream from the town of Soquel and occasionally causes considerable turbidity in Soquel Creek.

A surface water sampling station is maintained on Soquel Creek at Soquel to monitor quality of runoff from this basin.

SOQUEL CREEK AT SOQUEL (STA. 76)

Sampling Point Soquel Creek is sampled in Section 10, Township 11 South, Range 1 West, Mt. Diablo Base and Meridian. Monthly water samples were collected from the left bank at the USGS gage, which is located 0.25 mile upstream from the bridge on old Santa Cruz highway and about 1.2 miles from the mouth.

Period of Record December 1951 through December 1959.

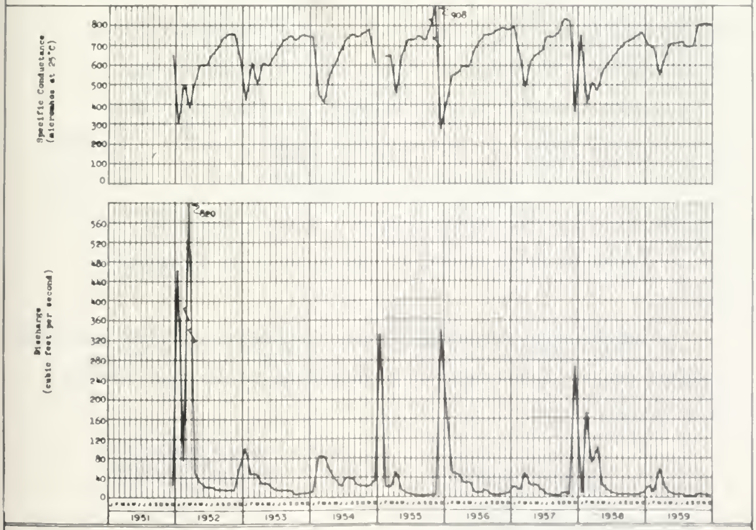
Water Quality Characteristics Water samples collected at this station exhibit a bicarbonate characteristic with no specific cation being consistently predominant, although the calcium or calcium and magnesium ions have displayed a predominance. This water qualifies as class 1 for irrigation, has mineral concentrations meeting the drinking water standards and a hardness ranging from slightly hard to very hard.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	908	[illegible]	[illegible]	554
Temperature in °F	[illegible]	[illegible]	68	[illegible]
Dissolved oxygen in parts per million	12.6	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	71	[illegible]	[illegible]
pH	[illegible]	7.1	8.1	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	84	28	76	[illegible]
Magnesium (Mg)	35	2.7	[illegible]	[illegible]
Sodium (Na)	[illegible]	15	[illegible]	[illegible]
Potassium (K)	6.8	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	12	[illegible]
Bicarbonate (HCO_3)	277	78	262	[illegible]
Sulfate (SO_4)	[illegible]	75	[illegible]	[illegible]
Chloride (Cl)	[illegible]	1	92	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	20	37	27
Total dissolved solids in parts per million	573	175	511	350
Percent sodium	34	20	32	21
Hardness as $CaCO_3$ in parts per million				
Total	324	72	309	215
Noncarbonate	118	[illegible]	118	39
Turbidity	240	[illegible]	8	[illegible]
Coliform in most probable number per milliliter	7,000.	0.62	2,400.	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.41	[illegible]	0.41	[illegible]
Solid alpha	1.04	0.00	1.04	[illegible]
Dissolved beta	14.1	0.00	5.56	0.00
Solid beta	7.09	0.00	7.09	[illegible]

WATER QUALITY VARIATIONS



SOQUEL CREEK AT SOQUEL (STA. 76)

Pajaro River Basin

The Pajaro River drainage basin encompasses 1,303 square miles in the northwestern portion of the Central Coastal Region. Llagas Creek, Pacheco Creek and several other smaller streams combine to form the Pajaro River in the lower end of South Santa Clara Valley. The confluence of the San Benito and Pajaro Rivers is located just east of Pajaro Gap and less than ten miles downstream from Pajaro River formation point. Only 116 square miles of drainage area contribute to the runoff to the Pajaro River below Pajaro Gap. The Pajaro River Basin has an average annual runoff of about 222,500 acre-feet.

Mountains and foothills cover almost 80 percent of the land area in this basin. The three valley fill areas, Pajaro, South Santa Clara and Hollister, comprise 280 square miles of potential or already developed agricultural lands. Agriculture is the predominant user of water and is the major factor in economic development in the area.

Waste discharges entering waterways of this basin originate from urban, light industrial, and individual domestic sources. Excepting for the waste outflows from the Cities of Gilroy (2.75 mgd) and Hollister (0.50 mgd) these discharges do not exceed 0.50 mgd. Irrigation return flows are the major source of quality impairment in the Pajaro River Basin.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed.

Monitoring Station	Page Number of Station Discussed
Pajaro River near Chittenden	118
Uvas Creek near Morgan Hill	120
San Benito River near Bear Valley Fire Station	122

PAJARO RIVER NEAR CHITTENDEN (STA. 77)

Sampling Point Station 77 is located in Section 12, Township 12 South, Range 3 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank at the bridge crossing on Chittenden Road at the Santa Cruz-San Benito County Line. The sampling point is located 1 mile southeast of Chittenden and 2.5 miles downstream from the San Benito River confluence.

Period of Record December 1951 through December 1959.

Water Quality Characteristics Since inception of a monitoring station on Pajaro River analysis of the water reveals bicarbonate to be the predominant anion and calcium, magnesium, and sodium cations to be nearly equal in equivalents per million. The water at this station is generally class 2 for irrigation. In 1954, a boron concentration of 2.0 ppm was found, which is the upper limit for a class 2 water. In 1957 a chloride concentration of 374 ppm made waters from Pajaro River class 3. Pajaro River water also has, on occasion, exceeded the mineral criteria for drinking water and generally ranges from moderately hard to very hard.

Significant Water Quality Changes During 1959, in May, September, and December, standard mineral and heavy metals analyses, concentrations of certain mineral constituents were found to exceed the criteria for drinking water. In particular, manganese was found to be 6.5 ppm, which greatly exceeded the previously recorded maximum of 0.02 ppm. The cause of this extreme has not been ascertained. The water, during 1959, was consistently very hard, substantiating an apparent trend that Pajaro River water is becoming harder each year.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	2,2[illegible]	268	1,480	6[illegible]
Temperature in °F	77	45	76	50
Dissolved oxygen in parts per million	14.7	[illegible]	[illegible].9	6.8
Percent saturation	12[illegible]	[illegible]	1[illegible]	77
pH	[illegible].4	[illegible].3	8.1	7.[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	149	28	1[illegible]	65
Magnesium (Mg)	94	17	75	[illegible]
Sodium (Na)	273	29	177	[illegible]
Potassium (K)	12	1.7	12	3
Carbonate (CO_3)	14	[illegible]	13	[illegible].0
Bicarbonate (HCO_3)	620	122	620	207
Sulfate (SO_4)	304	67	298	67
Chloride (Cl)	174	8	1[illegible]2	37
Nitrate (NO_3)	15	[illegible].3	15	0.8
Fluoride (F)	0.6	0.0	0.3	0.1
Boron (B)	2.0	[illegible].18	0.7	0.3
Silica (SiO_2)	32	10	32	21
Total dissolved solids in parts per million	1,400	169	935	400
Percent sodium	75	21	48	21
Hardness as $CaCO_3$ in parts per million				
Total	625	106	625	251
Noncarbonate	340	[illegible]	340	0.[illegible]
Turbidity	1,600	0.4	35	1
Coliform in most probable number per milliliter	[illegible]7,000.	0.23	2,400.	0.62
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.86	0.[illegible]	0.00	0.00
Solid alpha	0.59	0.00	0.41	0.18
Dissolved beta	11.73	0.00	5.55	4.00
Solid beta	9.69	0.00	9.29	1.8[illegible]

WATER QUALITY VARIATIONS

PAJARO RIVER NEAR CHITTENDEN (STA. 77)

UVAS CREEK NEAR MORGAN HILL (STA. 96)

Sampling Point Uvas Creek is sampled in Section 18, Township 10 South, Range 3 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected immediately below Uvas Dam at the outlet, about 0.6 mile downstream from Eastman Canyon and 4.8 miles southwest of Morgan Hill.

Period of Record July 1952 through December 1959.

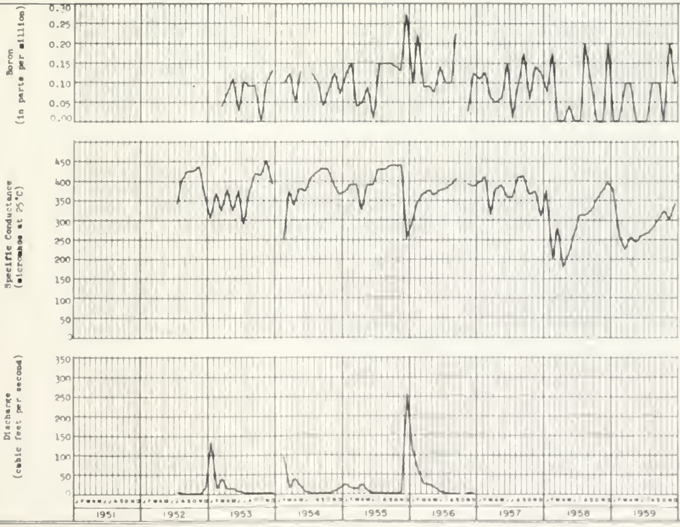
Water Quality Characteristics Chemical classification of past analyses of this water revealed a predominant bicarbonate anion and the principal cations to be calcium and magnesium, neither of which is consistently predominant. Uvas Creek water is class 1 for irrigation, meets the drinking water mineral limits, and ranges from slightly hard to very hard. This water is a source of municipal supply for the City of Gilroy.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	451	181	374	210
Temperature in °F	80	45	71	47
Dissolved oxygen in parts per million	12.0	5.6	11.9	7.3
Percent saturation	110	60	104	70
pH	8.3	7.0	7.7	7.1
Mineral constituents in parts per million				
Calcium (Ca)	52	13	34	25
Magnesium (Mg)	42	10	13	12
Sodium (Na)	41	5.6	11	6.7
Potassium (K)	3.7	0.6	2.4	1.3
Carbonate (CO_3)	12	0.0	2	0.0
Bicarbonate (HCO_3)	238	95	183	115
Sulfate (SO_4)	44	9.6	21	9.6
Chloride (Cl)	14	4.5	9.0	5.0
Nitrate (NO_3)	1.6	0.0	1.5	0.3
Fluoride (F)	0.2	0.0	0.0	0.0
Boron (B)	0.27	0.0	0.2	0.0
Silica (SiO_2)	26	12	13	12
Total dissolved solids in parts per million	278	113	231	140
Percent sodium	32	9	15	12
Hardness as $CaCO_3$ in parts per million				
Total	222	82	172	104
Noncarbonate	28	4	22	7
Turbidity	140	0.0	95	2
Coliform in most probable number per milliliter	>7,000.	<0.045	2,400.	0.23
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.90	0.00	0.90	0.10
Solid alpha	0.50	0.00	0.00	0.00
Dissolved beta	6.40	0.00	4.40	0.00
Solid beta	6.65	0.00	6.6[illegible]	0.00

WATER QUALITY VARIATIONS



UVAS CREEK NEAR MORGAN HILL (STA. 96)

SAN BENITO RIVER NEAR BEAR VALLEY FIRE STATION (STA. 77a)

Sampling Point The location of this sampling station is in Section 28, Township 15 South, Range 7 East, Mt. Diablo Base and Meridian. Monthly water samples were collected from the left bank about 1.7 miles downstream from Willow Creek, 10.4 miles northwest of San Benito, and 3.0 miles north of Bear Valley Fire Station.

Period of Record July 1958 through December 1959.

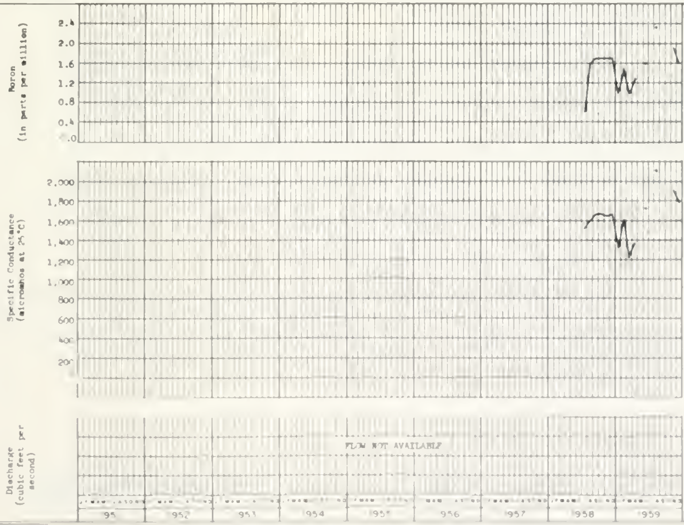
Water Quality Characteristics A review of past analyses shows the principal cations in San Benito River to be magnesium and sodium, and the principal anions to be bicarbonate and sulfate. This water is usually class 2 for irrigation except for one boron determination of 2.3 ppm which occurred in August 1959, making it class 3 at that time. Sulfate and total dissolved solids concentrations make this water unsatisfactory for domestic use. This water is extremely hard with a range from 476 ppm to 596 ppm total hardness.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	2,130	1,220	2,130	1,220
Temperature in °F	86	49	85	50
Dissolved oxygen in parts per million	12.6	8.0	11.2	8.0
Percent saturation	128	88	126	94
pH	8.4	8.0	8.1	8.1
Mineral constituents in parts per million				
Calcium (Ca)	52	24	52	24
Magnesium (Mg)	114	98	114	98
Sodium (Na)	292	114	292	114
Potassium (K)	7.2	2.7	7.2	2.7
Carbonate (CO_3)	29	0.0	29	0.0
Bicarbonate (HCO_3)	526	417	526	417
Sulfate (SO_4)	464	192	464	192
Chloride (Cl)	195	64	195	64
Nitrate (NO_3)	1.9	0.0	1.9	0.0
Fluoride (F)	0.5	0.2	0.5	0.2
Boron (B)	2.3	0.6	2.3	1.0
Silica (SiO_2)	16	4.0	16	4.0
Total dissolved solids in parts per million	1,390	756	1,390	756
Percent sodium	52	33	52	33
Hardness as $CaCO_3$ in parts per million				
Total	596	476	596	476
Noncarbonate	233	64	147	64
Turbidity	9	1	9	1
Coliform in most probable number per milliliter	230.	0.23	230.	0.23
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.00			
Solid alpha	0.08			
Dissolved beta	0.20			
Solid beta	1.33			

WATER QUALITY VARIATIONS



SAN BENITO RIVER NEAR BEAR VALLEY FIRE STATION (STA. 77a)

Salinas River Basin

The Salinas River system drains an area of about 4,400 square miles which cover the central portion of the Central Coastal Region. Mountains and foothills cover approximately 3,480 square miles and valley and mesa land occupy the remaining 220 square miles. From its coast line along Monterey Bay the basin extends southeasterly about 150 miles. Mean seasonal runoff in the Salinas River watershed is 713,800 acre-feet.

The Salinas River meanders along its course through Salinas Valley for nearly 100 miles. The economy of the basin is based on the agricultural complex which has developed on the fertile valley floor. Water requirements of the basin for domestic, municipal, industrial and irrigation are supplied mostly from ground water. In recent years several small dams on tributaries to the Salinas River have provided surface water supplies to the upper end of the valley.

Waste disposal and irrigation return water have not created serious deleterious effects on the quality of water in the basin. Significant waste discharges entering this stream system are for the most part outflows from community sewerage systems. Prominent among these are Alisal Sanitary District (1.3 mgd), King City (0.4 mgd), City of Salinas (2.93 mgd), and Soledad Prison (0.5 mgd).

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed.

Monitoring Station	Page Number of Station Discussed
Salinas River at Paso Robles*	
Salinas River near Bradley*	
Salinas River near Spreckels	126
Nacimiento River near San Miguel*	
San Antonio River at Pleyto*	

* Monitoring stations are in Southern California and will be discussed in Part II of this bulletin.

SALINAS RIVER NEAR SPRECKELS (STA. 43)

Sampling Point Station 43 is located in Section 8, Township 15 South, Range 3 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the USGS gaging station 50 yards upstream from the bridge 4 miles south of Salinas and 2.0 miles west of Spreckels.

Period of Record April 1951 through May 1957 and April 1958 through December 1959. Salinas River at this station is dry during a portion of most years and data are not available for all months.

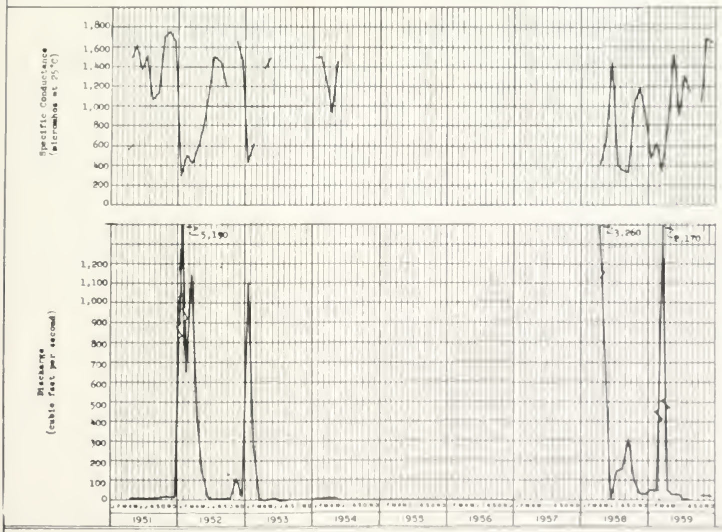
Water Quality Characteristics Antecedent data reveal water at this station to be characteristically a bicarbonate type with the cations nearly evenly divided between calcium, magnesium and sodium. From an irrigation standpoint Salinas River water is class 2 due to boron and dissolved solids concentrations. Total dissolved solids also exceed the limits recommended for a domestic supply. This water ranges from moderately hard to very hard. Effluent from Alisal Sanitary District Sewage Treatment Plant is discharged to the river about 100 yards upstream.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	1,750	307	[illegible]	352
Temperature in °F	81	48	[illegible]	[illegible]
Dissolved oxygen in parts per million	12.2	[illegible]	[illegible]	[illegible]
Percent saturation	136	[illegible]	136	[illegible]
pH	8.3	6.6	8.0	7.1
Mineral constituents in parts per million				
Calcium (Ca)	132	32	132	
Magnesium (Mg)	58	13	49	
Sodium (Na)	176	[illegible]	149	[illegible]
Potassium (K)	34	1.8	10	
Carbonate (CO_3)	21	[illegible]	3	0.0
Bicarbonate (HCO_3)	910	134	872	143
Sulfate (SO_4)	206	40	192	
Chloride (Cl)	190	14	190	14
Nitrate (NO_3)	19	0.0	0.2	
Fluoride (F)	2.0	0.2	0.3	
Boron (B)	0.6	0.0	0.5	0.1
Silica (SiO_2)	48	22	[illegible]	
Total dissolved solids in parts per million	1,030	180	987	206
Percent sodium	56	19	56	19
Hardness as $CaCO_3$ in parts per million				
Total	650	132	624	146
Noncarbonate	263	0.0	263	0.0
Turbidity	400	0.0	[illegible]	[illegible]
Coliform in most probable number per milliliter	62,000.	0.06	7,000.	0.06
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.72	0.00	0.20	
Solid alpha	0.47	0.00	0.41	
Dissolved beta	27.48	0.00	0.00	
Solid beta	[illegible]	0.00	2.39	

WATER QUALITY VARIATIONS



SALINAS RIVER NEAR SPRECKELS (STA. 43)

Carmel River Basin

In the north central portion of the Central Coastal Region and immediately south of Monterey Bay lies the Carmel River watershed. The area of this basin is 254 square miles, of which nearly 249 square miles comprise foothills and mountains. The Carmel River Basin has a mean annual discharge of about 142,300 acre-feet.

Development in this area is centered around Carmel Valley and in the widely known resort area on Monterey Peninsula. Irrigated lands in the valley, and urban and domestic requirements of the peninsula, are the major water users in the basin.

Wastes in this basin, for the most part, are discharged to the Pacific Ocean. Wastes entering Carmel River are minor in quantity and do not create serious impairment problems.

A surface water sampling station is maintained on Carmel River at Robles del Rio to monitor quality of runoff from this basin.

CARMEL RIVER AT ROBLES DEL RIO (STA. 83)

Sampling Point Station 83 is located in Section 17, Township 16 South, Range 1 East, Mt. Diablo Base and Meridian. The station was sampled monthly from mid-stream from Robles del Rio bridge in the town of Robles del Rio.

Period of Record January 1952 through December 1959. Carmel River has been dry on several occasions during this period, therefore, data are not available for all months.

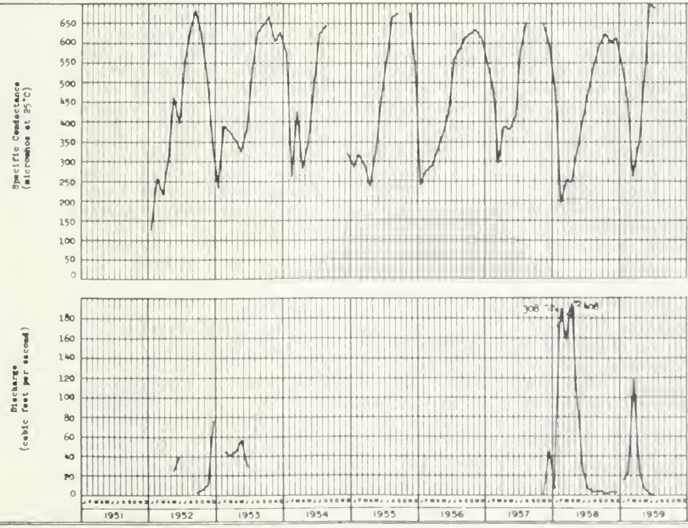
Water Quality Characteristics A review of past analyses reveals that the water at Station 83 exhibits no predominant cation or anion. Calcium, magnesium and sodium are all present in significant proportions, while the principal anions are bicarbonate and sulfate. The water consistently qualifies as class 1 for irrigation and meets the mineral standards for drinking water. Waters at this station have ranged from slightly hard to very hard.

Significant Water Quality Changes During 1959, samples of Carmel River water revealed the previous recorded maximum concentrations of conductivity, total dissolved solids and hardness were exceeded. Extremely low flows were encountered in June and July, possibly accounting for the excessive mineral concentrations found in samples collected during these two months. The river was dry during the last five months of 1959.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maxim[illegible]	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	16.[illegible]	[illegible]	[illegible]	9.[illegible]
Percent saturation	188	[illegible]	[illegible]	[illegible]
pH	8.[illegible]	7.[illegible]	[illegible]	7.[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	6[illegible]	2[illegible]	48	
Magnesium (Mg)	[illegible]	[illegible]	16	
Sodium (Na)	[illegible]	11	51	[illegible]
Potassium (K)	[illegible]	1.5	[illegible]	
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	54	197	[illegible]
Sulfate (SO_4)	1[illegible]4	36	68	
Chloride (Cl)	62	6	[illegible]	14
Nitrate (NO_3)	1.7	[illegible]	[illegible]	
Fluoride (F)	0.5	[illegible]	[illegible]	
Boron (B)	0.24	[illegible]	[illegible].0	[illegible]
Silica (SiO_2)	27	21	21	
Total dissolved solids in parts per million	431	81	431	162
Percent sodium	43	22	31	22
Hardness as $CaCO_3$ in parts per million				
Total	256	44	256	99
Noncarbonate	95	7	95	17
Turbidity	90	0.0	1[illegible]	1
Coliform in most probable number per milliliter	7,000.	<0.045	230.	[illegible].19
Radioactivity in micro-micro curies per liter				
Dissolved alpha	2.42	0.00	0.30	
Solid alpha	0.17	0.00	0.31	
Dissolved beta	7.0	0.00	4.98	
Solid beta	[illegible]	0.00	[illegible]	

WATER QUALITY VARIATIONS



CARMEL RIVER AT ROBLES DEL RIO (STA. 83)

St
Nu

STREAM SAMPLING STATIONS

CENTRAL COASTAL REGION (NO. 3)

Station Number	Station Name
43	Salinas River near Spreckels
75	San Lorenzo River at Big Trees near Felton
76	Soquel Creek at Soquel
77	Pajaro River near Chittenden
77a	San Benito River near Bear Valley Fire Station
83	Carmel River at Robles del Rio
96	Uvas Creek near Morgan Hill

44460

Central Valley Region (No. 5)

The Central Valley Region occupies about one-third of the total area of California and is comprised of all stream basins which drain into the Sacramento and San Joaquin Valleys. The basin extends from the Oregon-California border in the northeastern corner of the State to the crest of the Tehachapi Mountains 60 miles north of the City of Los Angeles. In order to facilitate discussion of this region it was subdivided into four separate areas as listed below:

Name of Areas	Numerical Designation
Sacramento River Valley	5a
San Joaquin River Valley	5b
Sacramento-San Joaquin Delta	5c
Tulare Lake Drainage	5d

To monitor quality of water in this basin samples are collected from 119 stations on 50 separate watercourses and 1 lake as shown on Plate 1. The four areas and their respective watercourses are as listed:

Sacramento River Valley (5a)

Sacramento River	Stony Creek
Colusa Trough	Clear Lake
McCloud River	Cache Creek
Pit River	Putah Creek
Clear Creek	Antelope Creek
Cow Creek	Mill Creek
Cottonwood Creek	Big Chico Creek
Battle Creek	Butte Creek
Paynes Creek	Feather River
Redbank Creek	Indian Creek
Elder Creek	Yuba River
Thomes Creek	Bear River
	American River

San Joaquin River Valley (5b)

San Joaquin River	Bear Creek
Salt Slough	Merced River
Fresno River	Tuolumne River
Chowchilla River	Stanislaus River

Central Valley Region (No. 5)

The Central Valley Region occupies about one-third of the total area of California and is comprised of all stream basins which drain into the Sacramento and San Joaquin Valleys. The basin extends from the Oregon-California border in the northeastern corner of the State to the crest of the Tehachapi Mountains 60 miles north of the City of Los Angeles. In order to facilitate discussion of this region it was subdivided into four separate areas as listed below:

Name of Areas	Numerical Designation
Sacramento River Valley	5a
San Joaquin River Valley	5b
Sacramento-San Joaquin Delta	5c
Tulare Lake Drainage	5d

To monitor quality of water in this basin samples are collected from 119 stations on 50 separate watercourses and 1 lake as shown on Plate 1. The four areas and their respective watercourses are as listed:

Sacramento River Valley (5a)

Sacramento River	Stony Creek
Colusa Trough	Clear Lake
McCloud River	Cache Creek
Pit River	Putah Creek
Clear Creek	Antelope Creek
Cow Creek	Mill Creek
Cottonwood Creek	Big Chico Creek
Battle Creek	Butte Creek
Paynes Creek	Feather River
Redbank Creek	Indian Creek
Elder Creek	Yuba River
Thomes Creek	Bear River
	American River

San Joaquin River Valley (5b)

San Joaquin River	Bear Creek
Salt Slough	Merced River
Fresno River	Tuolumne River
Chowchilla River	Stanislaus River

Sacramento-San Joaquin Delta (5c)

Lindsey Slough	Delta-Mendota Canal
Sacramento River	Italian Slough
Delta Cross Channel	Indian Slough
Little Potato Slough	Rock Slough
San Joaquin River	Cosumnes River
Stockton Ship Channel	Mokelumne River
Old River	Calaveras River
Grant Line Canal	

Tulare Lake Drainage (5d)

Kings River	Tule River
Kaweah River	Kern River

Five new stations were added to the surface water monitoring program in Region 5 during 1959. Sampling was commenced in January on Big Chico Creek at Chico (85a), Redbank Creek at Foothills (88d), Elder Creek at Gerber (95a), Thomes Creek near mouth (95b), and Bear Creek at Merced (111a). These stations were established to determine base level quality conditions at proposed water conservation project sites and to provide water quality monitoring on streams where coverage was deficient.

Waters in the Central Valley Region vary in quality from excellent to poor, depending on locality, flow and degradents encountered. Waters emanating from the Sierra Nevada, Cascade and Trinity Mountains were generally of excellent quality, while surface runoff from the Tehachapi Mountains in the south and the coastal ranges along the western perimeter varied from excellent to poor. Waters in the Sacramento Valley and foothill slopes of the San Joaquin, Sacramento-San Joaquin Delta, and Tulare Lake drainage were generally calcium bicarbonate in character. Waters in the San Joaquin Valley floor and in the Sacramento-San Joaquin Delta proper were usually sodium chloride in character due to the effect of such degradents as irrigation returns, ground water accretions, and sea-water incursion.

Sparse precipitation during 1959 resulted in an increase in most chemical constituents in waters of the Central Valley Region. However, with the exception of the delta area, the increase was usually not significant. In the delta, the paucity of tributary inflow and the continued heavy diversions for irrigation use in the delta uplands area resulted in significant degradation to surface waters from ground water accretions, irrigation returns, and sea-water incursion.

Sacramento River Valley (5a)

The Sacramento River Valley embraces all of the watersheds tributary to Sacramento River upstream from the southern drainage boundaries of Putah Creek and the American River hydrographic units. The basin extends north-south approximately 270 miles and contains over 26,000 square miles of highly variable terrain.

Mountains and foothills cover about 65 percent of the area, with the Sierra Nevada dominating the eastern portion, the Coastal Range to the west, and the Klamath Mountains and Cascade Range on the north. Bountiful valley and mesa lands exist in this area, with the extensive agricultural lands of the Sacramento Valley being predominant in this land class.

Mean seasonal surface runoff exceeds 22,300,000 acre-feet in the area. To facilitate discussion of the numerous drainage areas in this area, they are segregated into the following units with the number of sampling station of each in parentheses:

Sacramento River Unit (10)
McCloud River Basin (1)
Pit River Basin (4)
Redding Stream Unit (7)
West Side Stream Unit (12)
Sacramento Valley Northeast Stream Unit (6)
Feather River Basin (4)
Yuba-Bear Rivers Unit (4)
American River Basin (4)

Sacramento River Unit. The Sacramento River Unit extends from the northwesternmost corner of the Central Valley Region through the entire length of the Sacramento River Valley. The unit includes the drainage area of the Sacramento River above Shasta Reservoir, and the valley floor area of Sacramento Valley below Red Bluff. Mountainous terrain occupies all but a few of the 618 square miles along the reach of the river above Shasta Reservoir; while along its course below Red Bluff only Sutter Buttes breaks the 4,946 square miles of flat, gently rolling valley floor. Mean seasonal natural runoff for this unit is about 1,220,000 acre-feet.

Development along the upper reach is primarily associated with recreation or lumbering. Along the valley floor, agriculture and its allied food-processing industries are the primary economic endeavors. Mining, production of natural gas, recreation, and in recent years development related to military and aircraft programs, provide additional economic stability to the valley. These developments use considerable quantities of surface and ground water in their operations. Continued growth of the industrial and urban complex centers as well as irrigated agricultural expansion depend upon controlling, quantitatively and qualitatively, the water supply of the unit.

Waste discharges originating from industrial and municipal developments enter this major waterway along its entire length. In the upper reaches lumbermill effluent and sanitary sewage from resort communities constitute the major waste sources. In the valley floor area, lumber by-product industries, cities and towns, light industries, food product plants, and a considerable volume of irrigation return flow all combine to impose a significant waste load on the Sacramento River. A study is presently being conducted by the Department of Water Resources to evaluate the present effect of waste discharges and to determine the waste assimilating capacity of the Sacramento River. The major discharges entering the river and their approximate quantities in million gallons per day (mgd) are listed:

City of Redding	2.0 mgd
City of Red Bluff	1.0 mgd
Diamond Gardner International Corporation	5.0 mgd
City of Corning (Intermittently)	0.3 mgd
Natomas Drain (McClellan Air Force Base, City of Rio Linda, and North Sacramento)	6.3 mgd
City of Sacramento	50.0 mgd
City of Mountain View	6.0 mgd
City of Rio Linda	0.05 mgd
City of West Sacramento	2.4 mgd
American Crystal Sugar Refining (Clarksburg)	5.0 mgd

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed.

Monitoring Station	Page Number of Station Discussion
Sacramento River at Delta	140
Sacramento River at Keswick	142
Sacramento River at Bend (Red Bluff)	144
Sacramento River near Hamilton City	146
Sacramento River at Butte City	148
Sacramento River at Colusa	150
Sacramento River at Knights Landing	152
Sacramento River at Sacramento	154
Colusa Trough near Colusa	156
Sacramento Slough near Knights Landing	158

SACRAMENTO RIVER AT DELTA (STA. 11)

Sampling Point Station 11 is located in Section 35 of Township 36 North, Range 5 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank at the USGS gage 0.2 mile downstream from Dog Creek and 0.6 mile southeast of Delta.

Period of Record April 1951 through December 1959.

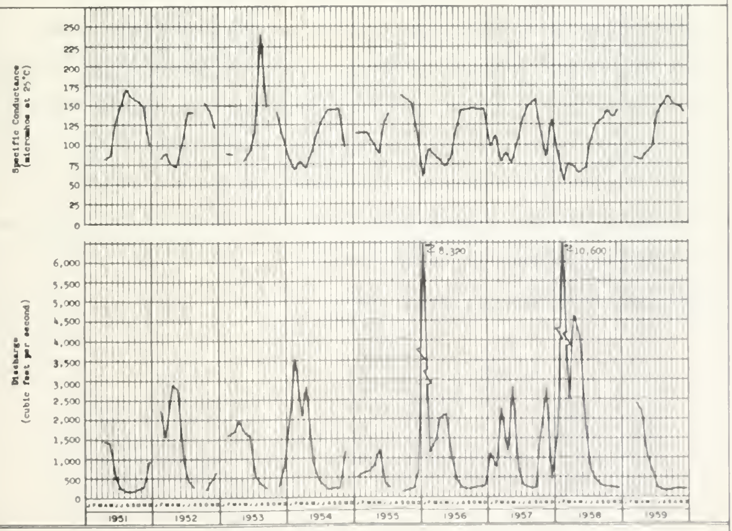
Water Quality Characteristics During periods of higher surface runoff, the water is magnesium bicarbonate in character. In summer months, however, when flows are comparatively low, calcium, magnesium, and sodium are about equal in importance. Very little variation in quality is noted at this point, and the water is of excellent quality for all uses. On rare occasions the water is slightly hard; however, it is soft the majority of the time. Total radioactivity reached 25.2 micro-micro curies per liter in May 1956, which is the highest value noted during the period of record.

Significant Water Quality Changes During 1959 total hardness reached 62 ppm, and noncarbonate hardness 6 ppm. These values are significant only inasmuch as they are the extremes for the period of record.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	239	55.7	162	81.7
Temperature in °F	82	36	74	40
Dissolved oxygen in parts per million	15.3	6.2	12.5	8.2
Percent saturation	124	68	107	86
pH	8.4	7.1	8.3	7.3
Mineral constituents in parts per million				
Calcium (Ca)	11	3.4	7.6	5.8
Magnesium (Mg)	8.5	4.0	8.5	6.0
Sodium (Na)	15	1.4	12	2.2
Potassium (K)	2.2	0.1	1.7	0.3
Carbonate (CO_3)	3	0.0	3	0.0
Bicarbonate (HCO_3)	87	32	83	48
Sulfate (SO_4)	5.0	1.0	2.9	2.0
Chloride (Cl)	12	0.0	11	2.5
Nitrate (NO_3)	0.6	0.0	0.2	0.0
Fluoride (F)	0.3	0.0	0.1	0.0
Boron (B)	0.3	0.0	0.3	0.0
Silica (SiO_2)	41	12	34	20
Total dissolved solids in parts per million	170	40	117	58
Percent sodium	38	9	33	11
Hardness as $CaCO_3$ in parts per million				
Total	62	26	62	34
Noncarbonate	6	0.0	6	0.0
Turbidity	40	0.0	20	1
Coliform in most probable number per milliliter	7,000.	0.62	230.	0.23
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.32	0.00	0.58	0.36
Solid alpha	2.81	0.00	0.59	0.18
Dissolved beta	19.6	0.00	1.36	0.00
Solid beta	9.18	0.00	6.73	2.46

WATER QUALITY VARIATIONS



SACRAMENTO RIVER AT DELTA (STA. 11)

SACRAMENTO RIVER AT KESWICK (STA. 12)

Sampling Point Station 12 is situated in Section 28 of Township 32 North, Range 5 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank at the USGS gage, 0.6 mile downstream from Keswick Dam, 0.6 mile upstream from Middle Creek and 10 miles downstream from Shasta Dam.

Period of Record April 1951 through December 1959.

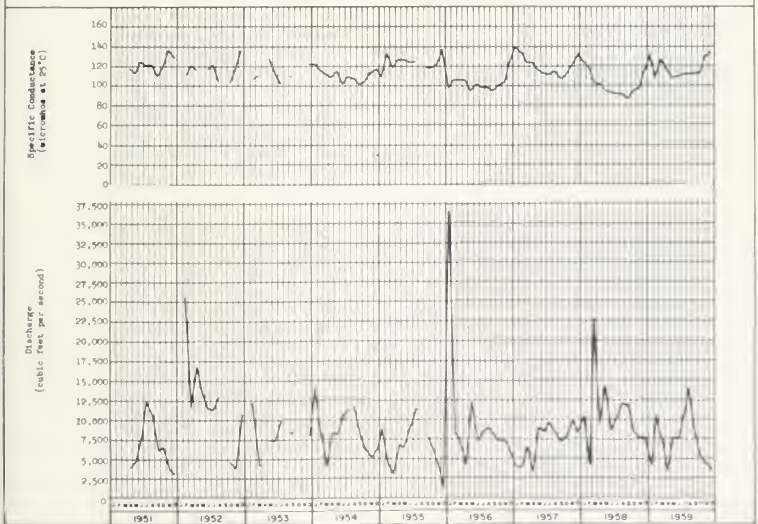
Water Quality Characteristics Antecedent data show the water at Station 12 to be of excellent quality, soft to slightly hard, and to vary only slightly in mineral content. However, on several occasions during recent years, comparatively large concentrations of heavy metals coming from Spring Creek have been sufficient to kill fish in the vicinity of this station. Streams draining the Spring Creek watershed frequently are acidic and have undesirable heavy metal concentrations and other toxic salts leached from tailings of both operating and abandoned mines. This situation has been partially corrected through increased releases from Shasta Reservoir coincident with increases of surface runoff in Spring Creek. The water at Station 12 is bicarbonate in type with calcium slightly dominant over other cations. This water is class 1 for irrigation, and excellent for domestic and industrial uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	139	86.5	134	107
Temperature in °F	60	41	59	50
Dissolved oxygen in parts per million	13.4	6.2	11.2	8.0
Percent saturation	119	57	99	79
pH	7.7	6.5	7.7	7.0
Mineral constituents in parts per million				
Calcium (Ca)	12	8.3	11	8.8
Magnesium (Mg)	6.3	1.9	6.3	4.3
Sodium (Na)	9.2	3.9	8.5	3.9
Potassium (K)	1.9	0.7	1.4	1.1
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	76	47	76	52
Sulfate (SO_4)	11.0	2.9	9.6	4.8
Chloride (Cl)	6.2	0.0	4.0	2.2
Nitrate (NO_3)	1.0	0.0	1.0	0.5
Fluoride (F)	0.3	0.0	0.3	0.1
Boron (B)	0.18	0.0	0.1	0.0
Silica (SiO_2)	29	15	29	25
Total dissolved solids in parts per million	102	67	102	79
Percent sodium	30	15	26	15
Hardness as $CaCO_3$ in parts per million				
Total	66	36	53	40
Noncarbonate	6	0.0	5	0.0
Turbidity	80	0.0	35	3
Coliform in most probable number per milliliter	7,000.	<0.045	23.	<0.045
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.33	0.00	0.58	0.00
Solid alpha	0.92	0.00	0.47	0.29
Dissolved beta	13.8	0.00	8.26	2.42
Solid beta	24.9	0.00	3.30	0.70

WATER QUALITY VARIATIONS



SACRAMENTO RIVER AT KESWICK (STA. 12)

SACRAMENTO RIVER AT BEND (STA. 12c)

Sampling Point Bend station is located in Section 20 of Township 28 North, Range 3 West, Mt. Diablo Base and Meridian. Daily composite and monthly grab samples were collected from the left bank 100 yards downstream from Bend Road bridge, 4.0 miles upstream from the mouth of Paynes Creek and approximately 6.0 miles north of Red Bluff.

Period of Record May 1955 through December 1959.

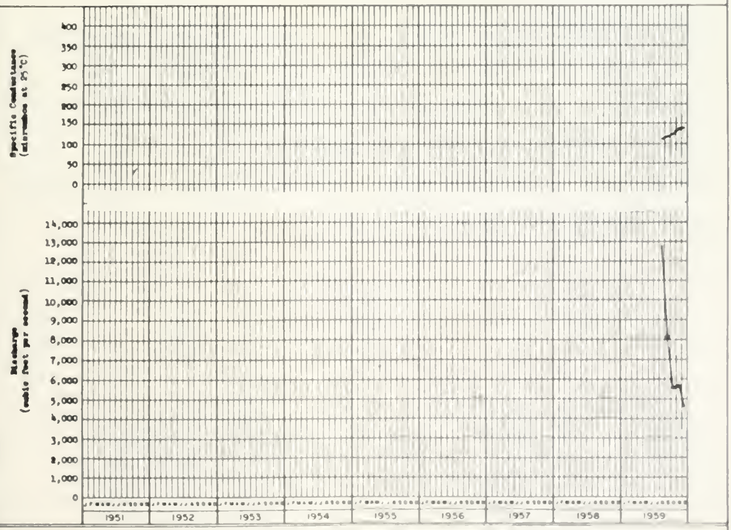
Water Quality Characteristics Sacramento River at Station 12c is bicarbonate in type with calcium the predominant cation, soft to slightly hard, class 1 for irrigation use and suitable for domestic and industrial use. Only minor variations in quality have been noted at this point during the period of record. There is no significant difference in quality of Sacramento River water between Station 12 near Redding and the Bend station.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	179	71.2	145	73.2
Temperature in °F	60	54	60	54
Dissolved oxygen in parts per million	10.5	9.6	10.5	9.6
Percent saturation	101	96	101	[illegible]
pH	8.0	6.2	7.8	6.2
Mineral constituents in parts per million				
Calcium (Ca)	15	7.6	13	8.0
Magnesium (Mg)	7.1	2.4	6.7	3.6
Sodium (Na)	11	3.2	8.7	3.2
Potassium (K)	3.0	0.6	2.1	0.7
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	84	28	79	28
Sulfate (SO_4)	16	1.9	16	3.0
Chloride (Cl)	8.0	0.1	6.0	1.8
Nitrate (NO_3)	4.2	0.0	1.7	0.0
Fluoride (F)	0.3	0.0	0.2	0.0
Boron (B)	0.46	0.0	0.1	0.0
Silica (SiO_2)	45	14	37	16
Total dissolved solids in parts per million	141	48	120	48
Percent sodium	28	16	27	18
Hardness as $CaCO_3$ in parts per million				
Total	66	28	60	30
Noncarbonate	7	0.0	7	0.0
Turbidity (Not Measured)				
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.0		0.0	
Solid alpha	2.27		2.27	
Dissolved beta	8.26		8.26	
Solid beta	4.81		4.81	

WATER QUALITY VARIATIONS



SACRAMENTO RIVER AT BEND (STA. 12c)

SACRAMENTO RIVER NEAR HAMILTON CITY (STA. 13)

Sampling Point Station 13 is located in Section 20 of Township 22 North, Range 1 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from a state highway bridge 10.5 miles west of Chico, 1.2 miles northeast of Hamilton City, and about 6.0 miles upstream from the mouth of Stony Creek.

Period of Record April 1951 through December 1959.

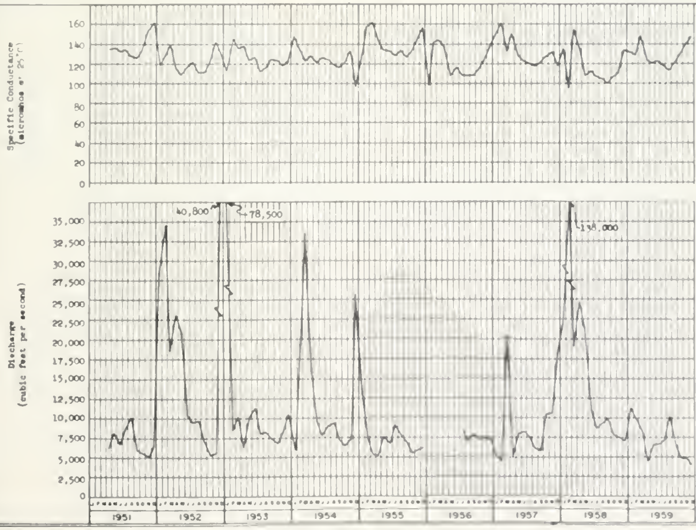
Water Quality Characteristics Past analyses show the water at the sampling point to be bicarbonate in type with calcium usually predominant. The water is soft to slightly hard, class 1 for irrigation, meets drinking water requirements for mineral content, and is excellent for industrial use. There have been no significant variations noted at this point during the period of record.

Significant Water Quality Changes There were no significant changes in water quality at this point during 1959 with the exception of total radioactivity. In the September sample, 18.4 micro-micro curies per liter were present, which represents the highest value reported at this point for the period of record. This value, however, is well below the recommended safe limit.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum [illegible]	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	77	[illegible]	[illegible]
Temperature in °F	[illegible]	41	[illegible]	47
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	7.2
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	8.8	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	4.3
Potassium (K)	[illegible]	[illegible]	[illegible]	1.3
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	3.8	[illegible]
Chloride (Cl)	[illegible]	[illegible]	7.0	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	0.0	[illegible]
Boron (B)	[illegible]	[illegible]	0.1	[illegible]
Silica (SiO_2)	[illegible]	20	[illegible]	24
Total dissolved solids in parts per million	146	68	[illegible]	[illegible]
Percent sodium	35	[illegible]	28	16
Hardness as $CaCO_3$ in parts per million				
Total	68	37	[illegible]	43
Noncarbonate	6	[illegible]	[illegible]	[illegible]
Turbidity	350	0.0	30	0
Coliform in most probable number per milliliter	>7,000	[illegible]	[illegible]	6.2
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	1.43	[illegible]	[illegible]	[illegible]
Dissolved beta	12.00	0.00	9.85	[illegible]
Solid beta	14.08	0.00	8.20	1.24

WATER QUALITY VARIATIONS



SACRAMENTO RIVER NEAR HAMILTON CITY (STA. 13)

SACRAMENTO RIVER AT BUTTE CITY (STA. 87a)

Sampling Point Station 87a is located in Section 32 of Township 19 North, Range 1 West, Mt. Diablo Base and Meridian. Monthly grab and daily composite samples were collected at the highway bridge just downstream from the gaging station and 0.5 mile south of Butte City.

Period of Record May 1955 through December 1959.

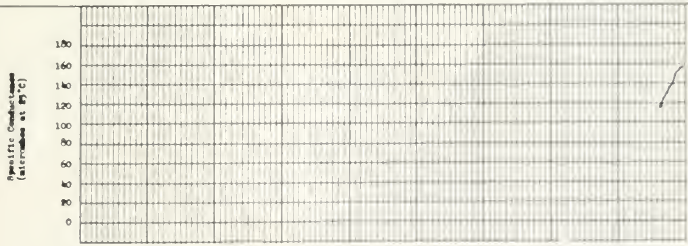
Water Quality Characteristics Analyses of daily composite samples show the water at Station 87a to be bicarbonate in type with calcium the major cation, soft to slightly hard, class 1 for irrigation use, and within drinking water requirements for mineral content. Comparison of analyses of samples from this station with those from the Sacramento River at Hamilton City (Station 13) reveal no significant difference in mineral quality.

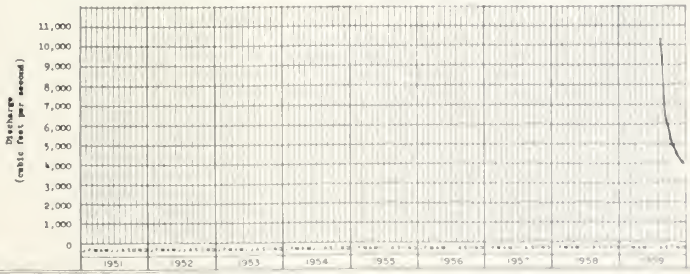
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	174	88.2	164	88.2
Temperature in °F				
Dissolved oxygen in parts per million				
Percent saturation				
pH	8.1	6.6	8.1	6.8
Mineral constituents in parts per million				
Calcium (Ca)	17	8.0	15	1[illegible]
Magnesium (Mg)	8.6	3.2	7.7	3.2
Sodium (Na)	8.9	4.1	9.3	5.1
Potassium (K)	2.0	0.8	2.0	1.3
Carbonate (CO_3)	0.0	0.0	0.0	0.[illegible]
Bicarbonate (HCO_3)	89	40	84	40
Sulfate (SO_4)	16	1.9	16	3.[illegible]
Chloride (Cl)	8.5	1.0	8.5	2.6
Nitrate (NO_3)	4.5	0.0	3.1	0.0
Fluoride (F)	0.7	0.0	0.3	0.0
Boron (B)	0.1	0.0	0.1	0.0
Silica (SiO_2)	35	14	35	20
Total dissolved solids in parts per million	128	65	120	72
Percent sodium	27	18	27	21
Hardness as $CaCO_3$ in parts per million				
Total	70	35	64	38
Noncarbonate	11	0.0	11	0.0
Turbidity				
Coliform in most probable number per milliliter				
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS





SACRAMENTO RIVER AT BUTTE CITY (STA. 87a)

SACRAMENTO RIVER AT COLUSA (STA. 13b)

Sampling Point Colusa station is located within Section 32 of Township 19 North, Range 1 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank at the River Road bridge at Colusa.

Period of Record October 1958 through December 1959.

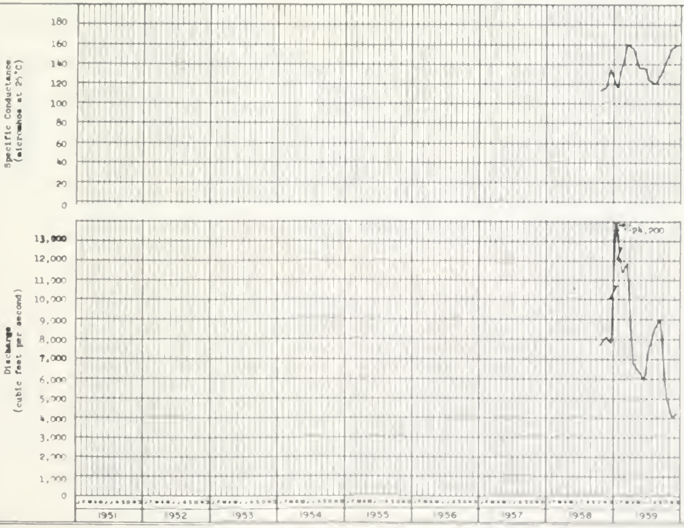
Water Quality Characteristics Water at this station is excellent in quality, bicarbonate in type, with calcium somewhat dominant over the cations. It is soft to slightly hard, class 1 for irrigation, and meets drinking water requirements. Comparison of data shows a minor increase in mineral concentration (10 to 50 micromhos) in the 157 miles between Keswick Dam (Station 12) and Colusa (Station 13b).

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	160	113	160	116
Temperature in °F	68	47	68	47
Dissolved oxygen in parts per million	10.6	8.8	10.6	8.8
Percent saturation	97	83	97	83
pH	7.8	7.1	7.8	7.2
Mineral constituents in parts per million				
Calcium (Ca)	14	9.6	14	9.6
Magnesium (Mg)	7.8	3.3	7.8	3.3
Sodium (Na)	11	4.9	11	4.9
Potassium (K)	1.9	0.9	1.9	0.9
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	85	43	85	43
Sulfate (SO_4)	15	2.9	15	3.0
Chloride (Cl)	8.0	2.2	8.0	2.2
Nitrate (NO_3)	2.0	0.0	2.0	0.0
Fluoride (F)	0.2	0.0	0.2	0.0
Boron (B)	0.1	0.0	0.1	0.0
Silica (SiO_2)	34	18	33	18
Total dissolved solids in parts per million	123	76	123	76
Percent sodium	27	17	27	17
Hardness as $CaCO_3$ in parts per million				
Total	67	42	67	42
Noncarbonate	7	0.0	7	0.0
Turbidity	9	1	9	1
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.68	0.00	0.68	0.00
Solid alpha	0.20	0.00	0.20	0.00
Dissolved beta	3.44	3.08	3.44	3.08
Solid beta	7.86	2.18	7.86	2.18

WATER QUALITY VARIATIONS



SACRAMENTO RIVER AT COLUSA (STA. 13b)

SACRAMENTO RIVER AT KNIGHTS LANDING (STA. 14)

Sampling Point Knights Landing station is located in Section 14 of Township 11 North, Range 2 East, Mt. Diablo Base and Meridian. Daily composites and monthly grab samples were collected at the Southern Pacific Railroad bridge, at Knights Landing, just downstream from the gaging station and about 34 miles upstream from Sacramento.

Period of Record April 1951 through December 1959.

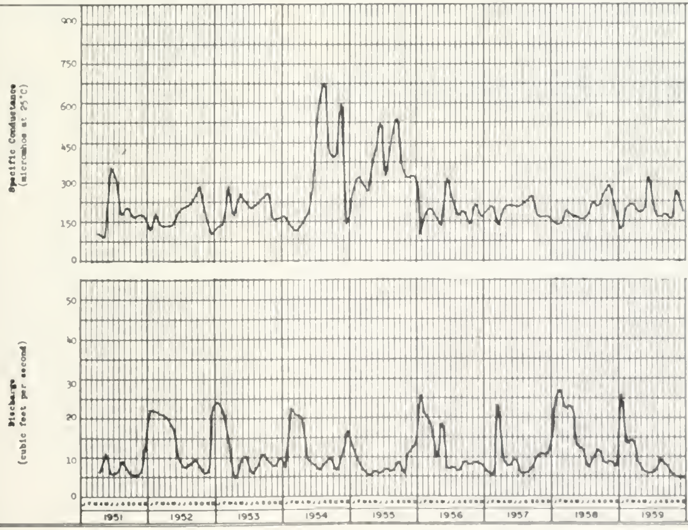
Water Quality Characteristics Water in Sacramento River at Knights Landing is bicarbonate in type with calcium and magnesium the predominant cations. The water is slightly hard to moderately hard, meets drinking water requirements for mineral content, and is generally class 1 for irrigation. In August 1954 boron reached 0.86 ppm placing this water in class 2 for irrigation. Comparison of analyses of samples from Station 14 with those of water from the Colusa station show that mineral concentrations become considerably higher (on the order of 160 micromhos) in Sacramento River at Knights Landing. Numerous irrigation drainage waters entering the river between these two stations accounts for the higher mineral concentrations at Station 14.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	81	[illegible]	[illegible]	47
Dissolved oxygen in parts per million	12.8	[illegible]	[illegible]	[illegible]
Percent saturation	109	42	[illegible]	71
pH	8.3	6.8	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	38	8.8	14	14
Magnesium (Mg)	20	3.4	8.3	6.8
Sodium (Na)	85	2.5	34	[illegible]
Potassium (K)	6.8	[illegible]	1.4	1.2
Carbonate (CO_3)	0.0	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	263	36	131	[illegible]
Sulfate (SO_4)	52	2.4	15	[illegible]
Chloride (Cl)	57	2.0	17	[illegible]
Nitrate (NO_3)	1.2	0.0	[illegible]	0.0
Fluoride (F)	0.5	0.0	0.1	0.0
Boron (B)	0.86	0.0	[illegible]	0.0
Silica (SiO_2)	31	15	27	24
Total dissolved solids in parts per million	423	59	202	74
Percent sodium	52	13	44	21
Hardness as $CaCO_3$ in parts per million				
Total	169	36	96	42
Noncarbonate	16	0.0	12	0.0
Turbidity	600	0.0	85	0.0
Coliform in most probable number per milliliter	>7,000.	0.046	230.	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.42	0.00	0.38	0.18
Solid alpha	0.67	0.00	0.40	0.09
Dissolved beta	6.86	0.00	6.86	0.00
Solid beta	14.75	0.00	3.83	0.00

WATER QUALITY VARIATIONS



SACRAMENTO RIVER AT KNIGHTS LANDING (STA. 14)

SACRAMENTO RIVER AT SACRAMENTO (STA. 15)

Sampling Point Station 15 is located in Section 35 of Township 9 North, Range 4 East, Mt. Diablo Base and Meridian. Daily composites and monthly grab samples were collected at Tower Bridge, 0.4 mile downstream from the gaging station at Sacramento, and about 1.3 miles downstream from the confluence of the American River.

Period of Record April 1951 through December 1959.

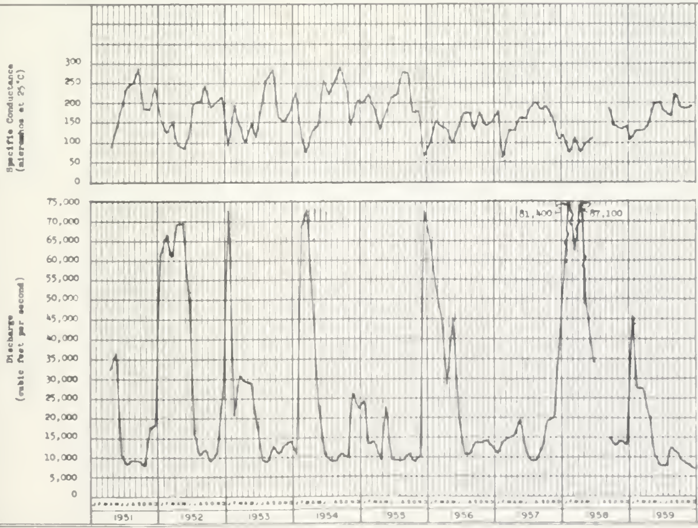
Water Quality Characteristics Past analyses show the water to be bicarbonate in type with calcium and magnesium about equal in predominance as the major cations, soft to slightly hard, class 1 for irrigation, suitable for all but the most exacting industrial uses, and within drinking water requirements for mineral content. Mineral concentrations are lower (30 to 60 micromhos) at Sacramento as compared to Knights Landing due to the influence of the American and Feather Rivers inflow.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum – 1959	Minimum – 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	41	[illegible]	47
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	116	[illegible]	[illegible]	88
pH	[illegible]	6.4	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	19	2.4	18	7.6
Magnesium (Mg)	12	1.8	11	[illegible]
Sodium (Na)	25	[illegible]	[illegible]	4.4
Potassium (K)	2.3	[illegible]	21	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	132	[illegible]	[illegible]	40
Sulfate (SO_4)	[illegible]	[illegible]	19	[illegible]
Chloride (Cl)	34	[illegible]	34	3.2
Nitrate (NO_3)	4.8	[illegible]	3.7	[illegible]
Fluoride (F)	[illegible]	0.0	0.2	[illegible]
Boron (B)	0.39	0.0	0.1	[illegible]
Silica (SiO_2)	34	[illegible]	28	[illegible]
Total dissolved solids in parts per million	179	41	165	[illegible]
Percent sodium	37	14	34	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	97	22	88	37
Noncarbonate	11	0.0	11	[illegible]
Turbidity	170	4	70	5
Coliform in most probable number per milliliter	7,000	0.21	7,000	0.21
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.67	0.00	0.09	[illegible]
Solid alpha	0.56	0.00	0.30	[illegible]
Dissolved beta	6.5	0.00	5.50	2.41
Solid beta	12.96	0.00	12.96	3.64

WATER QUALITY VARIATIONS



SACRAMENTO RIVER AT SACRAMENTO (STA 15)

COLUSA TROUGH NEAR COLUSA (STA. 87)

Sampling Point Station 87 is located in Section 34, Township 16 North, Range 2 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected near the surface, along the right bank, from State Highway 120 bridge 3 miles west of Colusa.

Period of Record July 1952 through December 1959.

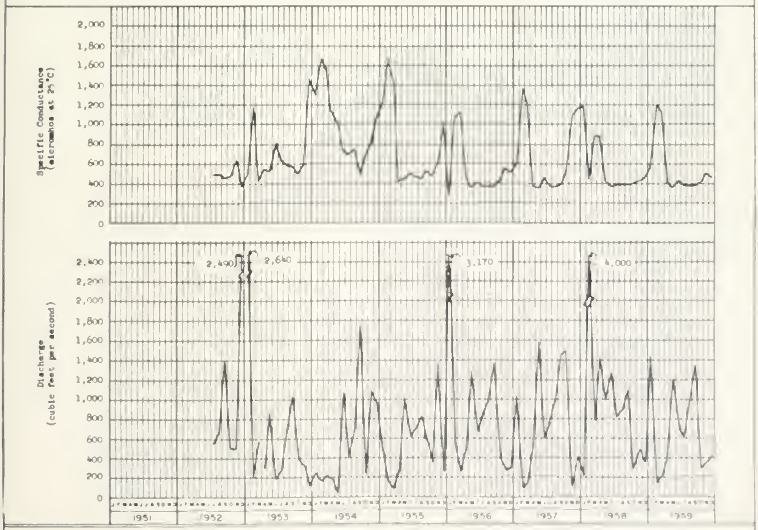
Water Quality Characteristics Past analyses show Colusa Trough water to be predominantly a mixed sodium-magnesium-calcium bicarbonate-sulfate type with concentrations of dissolved solids approaching the upper limit of class 1 for irrigation. Hardness ranged from moderately hard to very hard, limiting some domestic and industrial use. During the irrigation season this water is chiefly return flow from Colusa Basin and reflects the mineralized conditions of waters used and reused for agricultural purposes.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	1,670	269	1,200	359
Temperature in °F	81	43	79	46
Dissolved oxygen in parts per million	12.4	4.9	10.[illegible]	6.8
Percent saturation	112	46	87	78
pH	8.4	6.8	8.1	7.4
Mineral constituents in parts per million				
Calcium (Ca)	70	15	54	19
Magnesium (Mg)	73	9.4	43	14
Sodium (Na)	224	26	145	35
Potassium (K)	5.4	1.1	3.5	1.5
Carbonate (CO_3)	14	0.0	0.[illegible]	0.[illegible]
Bicarbonate (HCO_3)	363	96	327	142
Sulfate (SO_4)	226	21	226	21
Chloride (Cl)	172	11	93	14
Nitrate (NO_3)	5.8	0.0	5.8	0.0
Fluoride (F)	0.6	0.[illegible]	0.5	0.1
Boron (B)	0.37	0.0	0.3	0.1
Silica (SiO_2)	30	9.9	30	13
Total dissolved solids in parts per million	990	160	741	218
Percent sodium	58	34	50	35
Hardness as $CaCO_3$ in parts per million				
Total	418	76	312	104
Noncarbonate	129	0.[illegible]	44	[illegible]
Turbidity	520	9	60	2
Coliform in most probable number per milliliter	2,400.	5	2,400	[illegible]
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			[illegible].63	[illegible].28
Solid alpha			0.10	[illegible]
Dissolved beta			5.35	3.87
Solid beta			1.88	0.[illegible]

WATER QUALITY VARIATIONS



COLUSA TROUGH NEAR COLUSA (STA. 87)

SACRAMENTO SLOUGH NEAR KNIGHTS LANDING (STA. 14a)

Sampling Point The station is within Section 20, Township 11 North, Range 2 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected near the surface from the center of the stream, from a bridge crossing Sutter Bypass, near the discharge pipes from Reclamation District 1500 pumping plant about 4 miles east of Knights Landing.

Period of Record June 1951 through December 1959.

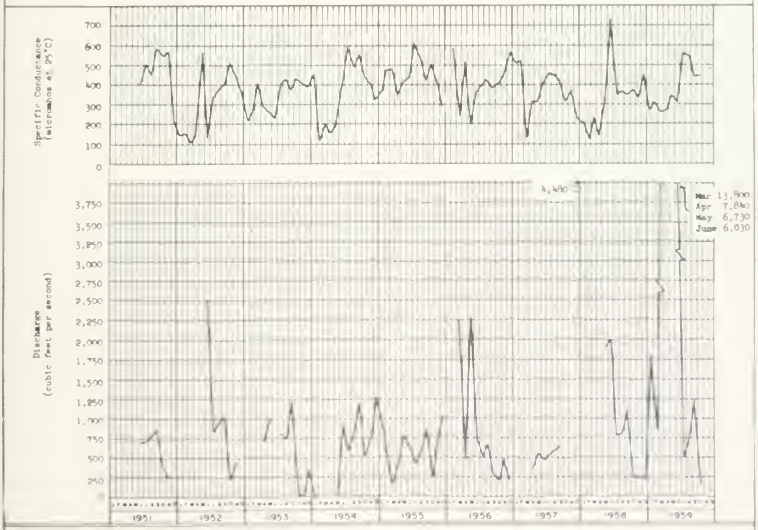
Water Quality Characteristics Past analyses show this water to be predominantly a mixed magnesium-calcium-sodium bicarbonate type, with low to moderate concentrations of dissolved solids, and class 1 for irrigation use. Water from Sacramento Slough is moderately hard and of limited use for some domestic and industrial uses. Flow in this slough is chiefly irrigation return and local drainage from Reclamation District 1500.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	789	106	562	258
Temperature in °F	84	41	78	46
Dissolved oxygen in parts per million	12.5	5.8	10.1	6.1
Percent saturation	107	65	95	72
pH	8.2	6.9	8.0	7.0
Mineral constituents in parts per million				
Calcium (Ca)	43	11	34	18
Magnesium (Mg)	30	4.9	24	12
Sodium (Na)	66	5.0	50	13
Potassium (K)	3.2	0.9	2.0	1.2
Carbonate (CO_3)	4.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	272	53	234	129
Sulfate (SO_4)	54	3.8	26	3.8
Chloride (Cl)	114	3.2	59	9.2
Nitrate (NO_3)	1.8	0.0	1.8	0.0
Fluoride (F)	0.4	0.0	0.2	0.0
Boron (B)	0.19	0.0	0.1	0.0
Silica (SiO_2)	36	15	36	19
Total dissolved solids in parts per million	440	64	337	154
Percent sodium	48	18	37	21
Hardness as $CaCO_3$ in parts per million				
Total	218	44	192	98
Noncarbonate	37	0.0	1	0.0
Turbidity	310	5	35	13
Coliform in most probable number per milliliter	>7,000.	0.62	7,000.	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.48	0.00	0.48	0.09
Solid alpha	0.60	0.00	0.60	0.37
Dissolved beta	3.64	0.00	3.64	0.00
Solid beta	9.23	0.00	2.77	2.36

WATER QUALITY VARIATIONS



SACRAMENTO SLOUGH NEAR KNIGHTS LANDING (STA. 14a)

McCloud River Basin. McCloud River watershed lies immediately north of Shasta Reservoir in the northern portion of the Central Valley Region. The river basin drains a heavily forested, predominantly mountainous terrain. Valley and mesa lands cover about 15 percent of the 685 square miles in the McCloud River Basin. Estimated mean seasonal runoff is 1,403,000 acre-feet.

Timber production provides the major stimulus for the economy of this basin. Livestock raising and recreation provide a supplement to the economic development. Water use and waste discharges of these developments are comparatively minor and have not created problems of any consequence.

To maintain surveillance on quality of runoff from this basin a monitoring station is located on McCloud River above Lake Shasta.

McCLOUD RIVER ABOVE SHASTA LAKE (STA. 18)

Sampling Point Station 18 is located in Section 31 of Township 36 North, Range 3 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, just above the backwater of Shasta Lake, 11 miles east of the town of Delta.

Period of Record April 1951 through December 1959.

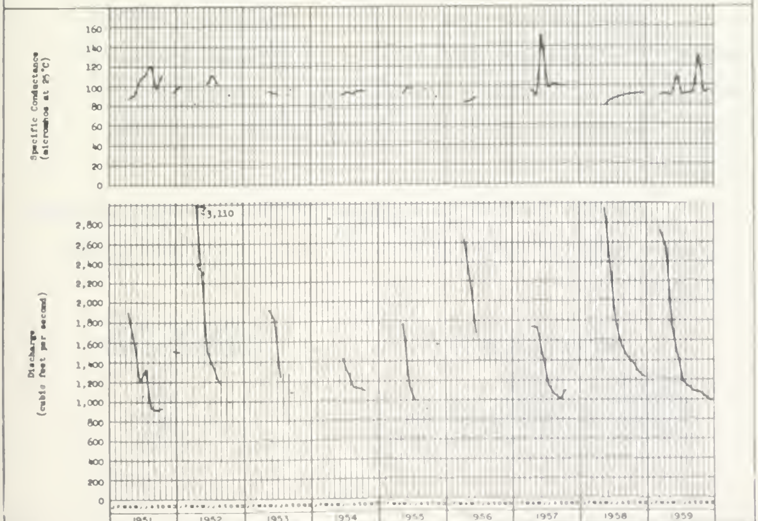
Water Quality Characteristics Past analyses show the water to be generally calcium bicarbonate in character, class 1 for irrigation, soft and within drinking water standards for mineral content. The station is generally inaccessible during the winter months and, therefore, samples are usually collected only during the spring, summer and fall months.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	150	79	129	88.4
Temperature in °F	60	42	57	42
Dissolved oxygen in parts per million	14.1	7.5	[illegible]	9.9
Percent saturation	124	61	102	94
pH	8.1	7.3	7.7	7.3
Mineral constituents in parts per million				
Calcium (Ca)	13	[illegible]	8.8	8.0
Magnesium (Mg)	5.1	2.1	3.6	3.5
Sodium (Na)	9.9	3.1	8.6	3.1
Potassium (K)	2.5	0.6	1.5	[illegible]
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	86	34	70	47
Sulfate (SO_4)	2.5	[illegible]	[illegible]	0.6
Chloride (Cl)	8	0.0	4.8	[illegible]
Nitrate (NO_3)	1.0	0.0	1.0	[illegible]
Fluoride (F)	0.2	0.0	0.1	0.0
Boron (B)	0.72	0.0	0.0	0.0
Silica (SiO_2)	41	25	38	29
Total dissolved solids in parts per million	134	66	105	73
Percent sodium	28	14	27	14
Hardness as $CaCO_3$ in parts per million				
Total	54	31	51	35
Noncarbonate	0.0	0.0	0.0	0.0
Turbidity	35	0.0	35	0.0
Coliform in most probable number per milliliter	>7,000.	<0.045	230.	<0.045
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.51	0.00	0.51	0.00
Solid alpha	0.55	0.17	0.55	0.22
Dissolved beta	10.80	0.00	3.07	2.10
Solid beta	5.96	0.00	[illegible]	0.11

WATER QUALITY VARIATIONS



McCLOUD RIVER ABOVE SHASTA LAKE (STA. 18)

Pit River Basin. Runoff from 5,758 square miles in California (including Goose Lake Basin) drains into the Pit River. Goose Lake Basin in California comprises 412 square miles which, during extremely wet years, spills over into the Pit River. Included with the Pit River Unit Basin are some 2,270 square miles of valley and mesa lands. Prominent among the valley fill areas are South Fork Pit River, Big Valley, Goose Lake, and Fall River. Estimated mean annual runoff of Pit River Basin is 3,426,000 acre-feet.

Topography of the area is characterized by several large upland valley areas, ranging in elevation from 2,500 to 5,000 feet, surrounded by rugged, volcanic peaks of the Cascade Range. These mountain and valley lands are used extensively for dry range for livestock and also support irrigated agriculture, timber production, mining, and recreation.

Waste discharges from several small communities, lumbermills, and local light industries enter the Pit River along its course. These wastes are minor, the largest being less than 0.5 mgd from the City of Alturas, and do not create any significant pollution or impairment problems:

The following tabulation presents the names of station maintained to monitor quality of surface water in this basin and the page on which each is discussed:

Monitoring Station	Page Number of Station Discussion
Pit River near Canby	166
Pit River near Bieber	168
Pit River near Montgomery Creek	170
Pit River, South Fork near Likely	172

PIT RIVER NEAR CANBY (STA. 17a)

Sampling Point The Canby station is situated in Section 10 of Township 41 North, Range 9 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the center of the channel of flow from the Highway 299 bridge 4.5 miles southwest of Canby.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Pit River at Station 17a is sodium-calcium bicarbonate, class 1 for irrigation and soft to slightly hard. Iron occasionally exceeds the recommended maximum for iron and manganese combined in drinking water. All other minerals are within drinking water standards. A significant increase (70 to 140 ppm) in the concentration of minerals occurs between the South Fork Pit River near Likely station and the Canby station.

Significant Water Quality Changes The iron concentration of 0.33 ppm reported in September 1959 exceeded the recommended maximum for iron and manganese together in drinking water.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	376	127	376	[illegible]
Temperature in °F	79	33	78	33
Dissolved oxygen in parts per million	12.5	6.0	12.5	7.2
Percent saturation	98	68	98	77
pH	8.4	6.8	8.3	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	24	11	24	20
Magnesium (Mg)	11	4.4	11	8.3
Sodium (Na)	47	8.4	47	20
Potassium (K)	7.0	2.3	7.0	[illegible]
Carbonate (CO_3)	6	0.0	6	[illegible]
Bicarbonate (HCO_3)	192	76	192	113
Sulfate (SO_4)	25	4.9	25	9.0
Chloride (Cl)	20	0.0	20	4.5
Nitrate (NO_3)	2.2	0.6	1.1	[illegible]
Fluoride (F)	0.6	0.0	0.3	[illegible]
Boron (B)	0.3	0.0	0.3	[illegible]
Silica (SiO_2)	38	29	33	30
Total dissolved solids in parts per million	263	89	263	152
Percent sodium	51	26	51	35
Hardness as $CaCO_3$ in parts per million				
Total	106	50	106	67
Noncarbonate	0.0	0.0	0.0	0.0
Turbidity	140	3	120	[illegible]
Coliform in most probable number per milliliter	>7,000.	0.23	2,400	0.5
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.19	0.00	0.19	0.17
Solid alpha	1.43	0.00	0.40	0.09
Dissolved beta	10.43	0.00	6.72	4.64
Solid beta	8.[illegible]	0.00	[illegible]	0.00

WATER QUALITY VARIATIONS

PIT RIVER NEAR CANBY (STA. 17a)

PIT RIVER NEAR BIEBER (STA. 17e)

Sampling Point Station 17e is located within Section 34 of Township 37 North, Range 7 East, Mt. Diablo Base and Meridian. Monthly water samples were collected from the right bank, at the USGS gage 1.5 miles upstream from Spring Gulch and 8 miles south of Bieber.

Period of Record October 1958 through December 1959.

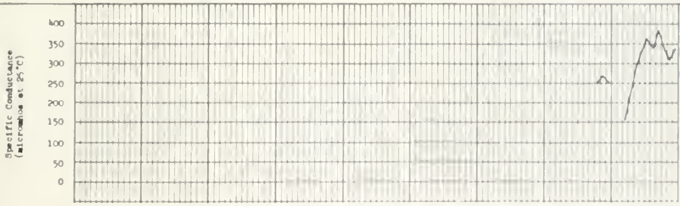
Water Quality Characteristics Water at this station is sodium-calcium bicarbonate in character, class 1 for irrigation, soft and within mineral standards for drinking water. There is no significant difference in conductivity of Pit River between the Canby station and the Bieber station.

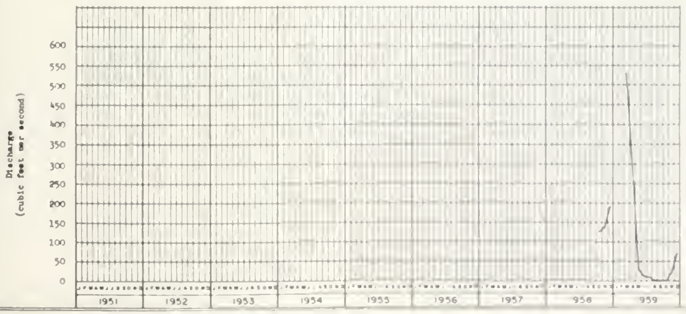
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	383	155	383	155
Temperature in °F	77	33	77	33
Dissolved oxygen in parts per million	14.6	7.3	14.6	7.3
Percent saturation	174	76	174	76
pH	8.3	7.3	8.3	7.4
Mineral constituents in parts per million				
Calcium (Ca)	28	13	28	13
Magnesium (Mg)	12	4.9	12	4.9
Sodium (Na)	68	14	68	14
Potassium (K)	8.8	2.6	8.8	2.6
Carbonate (CO_3)	53	0.0	53	0.0
Bicarbonate (HCO_3)	180	80	180	80
Sulfate (SO_4)	40	7.7	40	13
Chloride (Cl)	23	3.5	23	3.5
Nitrate (NO_3)	1.3	0.0	1.3	0.0
Fluoride (F)	0.5	0.2	0.5	0.2
Boron (B)	0.3	0.0	0.3	0.0
Silica (SiO_2)	35	10	34	10
Total dissolved solids in parts per million	246	122	246	122
Percent sodium	68	35	68	35
Hardness as $CaCO_3$ in parts per million				
Total	110	53	110	53
Noncarbonate	0.0	0.0	0.0	0.0
Turbidity	See 1959	See 1959	100	13
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			0.00	0.00
Solid alpha			0.10	0.09
Dissolved beta			13.33	6.15
Solid beta			7.16	2.66

WATER QUALITY VARIATIONS





PIT RIVER NEAR BIEBER (STA. 17e)

PIT RIVER NEAR MONTGOMERY CREEK (STA. 17)

Sampling Point Station 17 is located in Section 32 of Township 35 North, Range 1 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the USGS gage 1 mile upstream from Cow Creek and 3.5 miles west of the town of Montgomery Creek.

Period of Record April 1951 through December 1959.

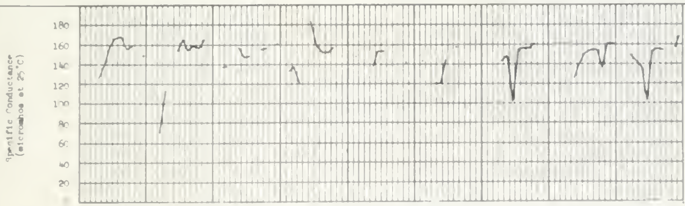
Water Quality Characteristics Past analyses show the character of the water at Station 17 to be calcium-magnesium bicarbonate, class 1 for irrigation, soft to slightly hard, and within the recommended limits for mineral content in drinking water. The concentration of most dissolved minerals in the Pit River normally decrease significantly (about 100 micromhos) between the Bieber station and Montgomery Creek station because of tributary inflow of better quality water.

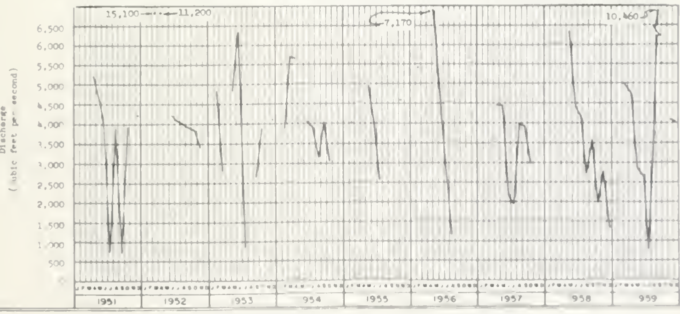
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	183	70	169	113
Temperature in °F	70	36	66	43
Dissolved oxygen in parts per million	13.8	6.9	11.9	8.8
Percent saturation	130	73	99	94
pH	8.4	7.1	8.1	7.1
Mineral constituents in parts per million				
Calcium (Ca)	14	6.9	11	11
Magnesium (Mg)	7.3	2.3	6.9	6.4
Sodium (Na)	14	2.6	14	7.4
Potassium (K)	3.2	0.8	2.3	1.4
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	98	44	91	63
Sulfate (SO_4)	4.8	0.9	4.8	1.0
Chloride (Cl)	8	0.8	5.5	1.5
Nitrate (NO_3)	1.0	0.0	1.0	0.4
Fluoride (F)	0.2	0.0	0.2	0.1
Boron (B)	0.3	0.0	0.2	0.0
Silica (SiO_2)	38	17	34	29
Total dissolved solids in parts per million	137	58	127	85
Percent sodium	35	15	35	24
Hardness as $CaCO_3$ in parts per million				
Total	74	32	62	43
Noncarbonate	3	0.0	0.0	0.0
Turbidity	60	0.5	50	1
Coliform in most probable number per milliliter	>7,000	<0.045	130.	<0.045
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.09	0.00	0.09	0.09
Solid alpha	0.78	0.00	0.50	0.17
Dissolved beta	8.82	0.00	8.82	0.00
Solid beta	1.66	0.00	0.64	0.28

WATER QUALITY VARIATIONS





PIT RIVER NEAR MONTGOMERY CREEK (STA. 17)

PIT RIVER, SOUTH FORK NEAR LIKELY (STA. 18a)

Sampling Point Station 18a is the upstream station on the Pit River Basin and is located in Section 11 of Township 39 North, Range 13 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, at the USGS gage 1.3 miles downstream from West Valley Creek and 3.5 miles east of Likely.

Period of Record August 1958 through December 1959.

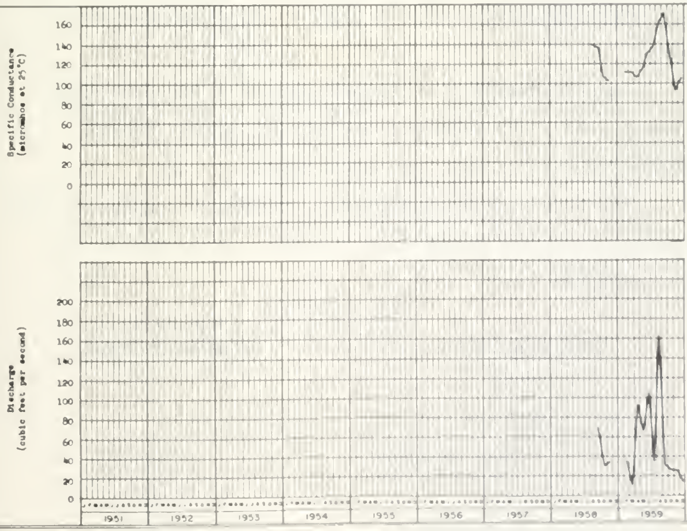
Water Quality Characteristics South Fork Pit River near Likely is calcium-magnesium bicarbonate in character, class 1 for irrigation and soft. Although it meets drinking water standards for mineral content, iron concentrations occasionally exceed the recommended limit of 0.3 ppm for iron and manganese combined.

Significant Water Quality Changes During September 1959, iron exceeded the maximum recommended limit for iron and manganese combined in drinking water when 0.74 ppm was reported. The source of the excessive iron concentrations has not been determined.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	172	93.2	172	93.2
Temperature in °F	78	32	78	32
Dissolved oxygen in parts per million	12.2	7.1	12.2	7.1
Percent saturation	97	79	97	79
pH	8.3	7.1	8.3	7.1
Mineral constituents in parts per million				
Calcium (Ca)	15	8.4	15	8.4
Magnesium (Mg)	6.2	3.5	6.1	[illegible]
Sodium (Na)	12	4.8	12	4.8
Potassium (K)	4.7	1.9	4.7	1.9
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	98	54	98	54
Sulfate (SO_4)	8.6	0.0	6.[illegible]	1.0
Chloride (Cl)	7.5	0.5	7.5	1.0
Nitrate (NO_3)	1.5	0.0	1.5	0.0
Fluoride (F)	0.3	0.0	0.2	0.0
Boron (B)	0.1	0.0	0.1	0.0
Silica (SiO_2)	40	31	40	31
Total dissolved solids in parts per million	137	81	137	81
Percent sodium	28	17	28	17
Hardness as $CaCO_3$ in parts per million				
Total	63	36	63	36
Noncarbonate	0.0	0.0	0.0	0.0
Turbidity	45	1	45	1
Coliform in most probable number per milliliter	See 1959	See 1959	>7,000	0.094
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.51	0.27	0.51	0.27
Solid alpha	0.44	0.27	0.44	0.27
Dissolved beta	9.32	6.35	9.32	6.35
Solid beta	0.47	0.00	0.00	0.00

WATER QUALITY VARIATIONS



PIT RIVER, SOUTH FORK NEAR LIKELY (STA. 18a)

Redding Stream Unit. The Redding stream unit is located on the northern extremity of Sacramento Valley and includes all major streams tributary to Sacramento River between Keswick Dam and Red Bluff. To the west of the Sacramento River, Cottonwood and Clear Creeks are the major tributaries, and Cow, Bear, Battle and Paynes Creeks contribute from the east. The unit drains an area of about 2,610 square miles of which 780 square miles is valley and mesa land. Mean annual runoff in the unit totals 2,740,000 acre-feet.

The terrain of the unit is comprised of a fertile valley floor, rolling grass-covered foothills, and rugged mountains at the eastern and western boundaries. Developments in this area are centered around agriculture and lumbering activities. Livestock raising, recreation, and light industry are also prevalent in the unit. The Sacramento River and the underlying ground water basin provide most of the water used in the unit.

Waste discharges of significant quantity in this unit include outflows from United States Plywood Corporation (.34 mgd), Anderson Sanitation District (.75 mgd), and City of Redding (2.5 mgd).

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

CLEAR CREEK NEAR IGO (STA. 12d)

Sampling Point Station 12d is located in Section 27, Township 31 North, Range 6 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank at the Redding-Igo road bridge, 1.0 mile northeast of Igo, 8 miles southwest of Redding, and 10.5 miles upstream from the mouth of the creek.

Period of Record April 1958 through December 1959.

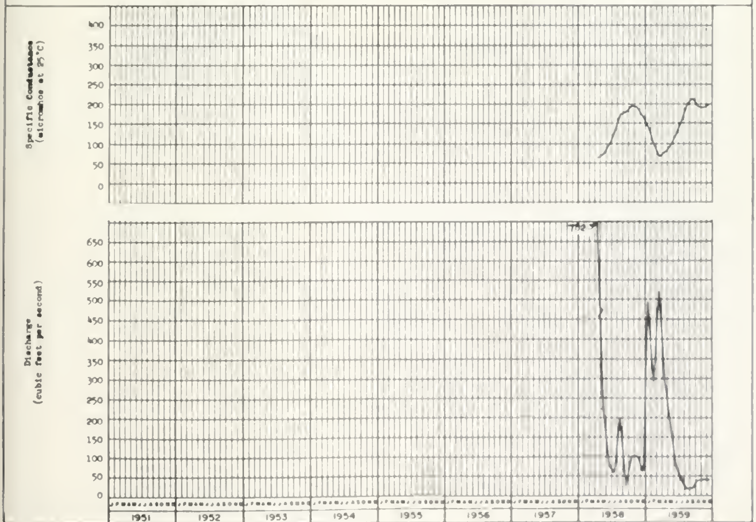
Water Quality Characteristics A review of past analyses show the water at Station 12d to be bicarbonate in type with no predominant cation, soft to slightly hard and meets the drinking water standards for mineral content. Mineral concentrations in this water identify it as class 1 for irrigation.

Significant Water Quality Changes Total radioactivity reached 28.4 micro-micro curies per liter in September 1959, which is a little higher than that normally found in streams of this unit.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	215	66.[illegible]	215	[illegible]
Temperature in °F	80	40	77	40
Dissolved oxygen in parts per million	13.3	6.5	13.3	7.9
Percent saturation	106	74	106	92
pH	9.3	7.1	7.9	7.3
Mineral constituents in parts per million				
Calcium (Ca)	19	6.4	19	6.6
Magnesium (Mg)	5.1	1.8	4.3	2.1
Sodium (Na)	18	3.3	18	3.3
Potassium (K)	1.3	0.3	1.3	0.3
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	70	28	70	28
Sulfate (SO_4)	17	1.9	17	5.8
Chloride (Cl)	26	3.0	26	3.0
Nitrate (NO_3)	1.7	0.0	1.7	0.0
Fluoride (F)	0.2	0.0	0.1	0.0
Boron (B)	0.13	0.0	0.1	0.0
Silica (SiO_2)	23	12	23	12
Total dissolved solids in parts per million	130	40	130	55
Percent sodium	37	21	37	21
Hardness as $CaCO_3$ in parts per million				
Total	65	24	65	26
Noncarbonate	21	0.0	21	1
Turbidity	10	1	10	1
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.58	0.10	0.58	0.10
Solid alpha	0.47	0.20	0.47	0.20
Dissolved beta	23.21	4.44	23.21	4.44
Solid beta	6.54	4.62	6.54	4.62

WATER QUALITY VARIATIONS



CLEAR CREEK NEAR IGO (STA. 12d)

COW CREEK NEAR MILLVILLE (STA. 88a)

Sampling Point The sampling station is located in Section 32 of Township 31 North, Range 3 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the USGS gage, 4.2 miles southwest of Millville, and 4.3 miles downstream from Little Cow Creek.

Period of Record April 1958 through December 1959.

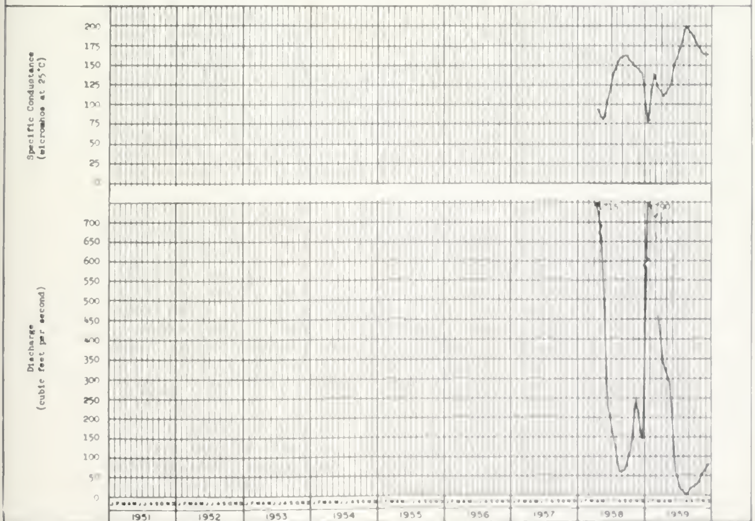
Water Quality Characteristics Analyses show water at Station 88a to be a calcium bicarbonate type, soft to slightly hard, class 1 for irrigation and meets the drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum 1959	Minimum 1959
Specific conductance (micromhos at 25°C)	201	76.6	[illegible]	[illegible]
Temperature in °F	87	43	87	[illegible]
Dissolved oxygen in parts per million	12.7	6.1	12.7	[illegible]
Percent saturation	106	72	[illegible]	[illegible]
pH	8.1	6.8	8.1	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	20	7.2	20	[illegible]
Magnesium (Mg)	7.8	2.9	7.8	[illegible]
Sodium (Na)	12	3.5	12	[illegible]
Potassium (K)	2.[illegible]	[illegible]	2.[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	0.0	[illegible]	[illegible]
Bicarbonate (HCO_3)	108	34	108	[illegible]
Sulfate (SO_4)	12	[illegible]	12	1.0
Chloride (Cl)	9.8	3.2	[illegible]	[illegible]
Nitrate (NO_3)	0.9	[illegible]	[illegible]	[illegible]
Fluoride (F)	0.2	[illegible]	[illegible]	[illegible]
Boron (B)	0.30	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	37	19	37	[illegible]
Total dissolved solids in parts per million	146	60	146	[illegible]
Percent sodium	25	18	25	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	80	30	80	[illegible]
Noncarbonate	9	[illegible]	[illegible]	[illegible]
Turbidity	See 1959	See 1959	15	[illegible]
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			[illegible]	[illegible]
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS



COW CREEK NEAR MILLVILLE (STA 88a)

COTTONWOOD CREEK BELOW NORTH FORK COTTONWOOD CREEK (STA. 11a)

Sampling Point The monitoring station is located in Section 2, Township 29 North, Range 6 West, Mt. Diablo Base and Meridian. Monthly water samples were collected from the left bank 13.5 miles west of the town of Cottonwood along Gas Point Road about 1.0 mile downstream from the mouth of North Fork Cottonwood Creek.

Period of Record October 1958 through December 1959.

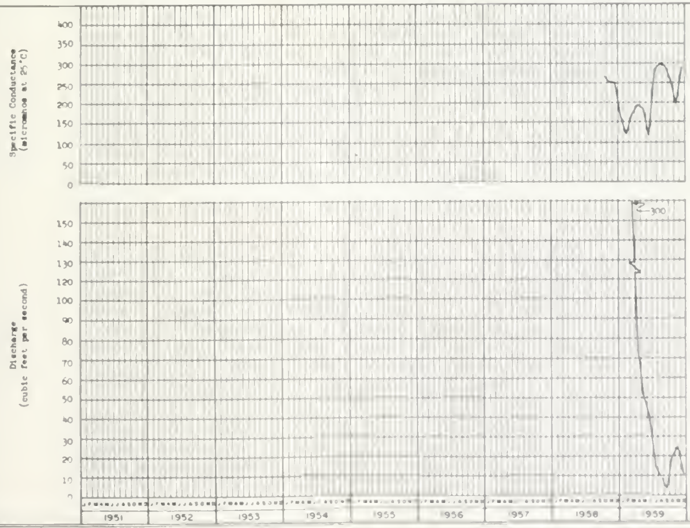
Water Quality Characteristics Water at Station 11a is bicarbonate in type, with no predominant cation, moderately hard, class 1 for irrigation, and meets drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	300	116	300	116
Temperature in °F	88	33	88	33
Dissolved oxygen in parts per million	13.1	6.6	13.1	6.6
Percent saturation	106	77	106	77
pH	8.1	7.1	8.1	7.1
Mineral constituents in parts per million				
Calcium (Ca)	30	11	30	11
Magnesium (Mg)	15	3.9	15	3.9
Sodium (Na)	14	4.1	14	4.1
Potassium (K)	2.6	0.4	2.6	0.4
Carbonate (CO_3)	5	0.0	5	0.0
Bicarbonate (HCO_3)	161	33	161	33
Sulfate (SO_4)	27	4.8	27	4.8
Chloride (Cl)	21	4.0	21	4.0
Nitrate (NO_3)	3.5	0.0	3.5	0.0
Fluoride (F)	0.2	0.0	0.2	0.0
Boron (B)	0.1	0.0	0.1	0.0
Silica (SiO_2)	24	11	24	11
Total dissolved solids in parts per million	183	80	183	80
Percent sodium	30	9	30	9
Hardness as $CaCO_3$ in parts per million				
Total	135	48	135	48
Noncarbonate	29	[illegible]	29	[illegible]
Turbidity	2	1	2	1
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.34	0.09	0.34	0.09
Solid alpha	0.82	0.62	0.82	0.62
Dissolved beta	6.24	4.27	6.24	4.27
Solid beta	4.92	3.41	4.92	3.41

WATER QUALITY VARIATIONS



COTTONWOOD CREEK BELOW NORTH FORK COTTONWOOD CREEK (STA. 11a)

COTTONWOOD CREEK NEAR COTTONWOOD (STA. 12b)

Sampling Point Station 12b is located in Section 7 of Township 29 North, Range 3 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the USGS gage 2 miles east of the town of Cottonwood, and approximately 2.5 miles upstream from the mouth.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Water at Station 12b is bicarbonate in type with generally no predominant cation. However, a tendency has been noted for calcium to become the dominant cation during periods of high flow. Concentrations of dissolved minerals vary only slightly at this point and depend chiefly on the rate of surface runoff. Samples of water from this station are class 1 for irrigation, are slightly to moderately hard, meet drinking water standards for mineral content, and are suitable for nearly all industrial uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	389	89.[illegible]	[illegible]	[illegible]
Temperature in °F	84	40	84	[illegible]
Dissolved oxygen in parts per million	13.9	6.7	13.9	8.9
Percent saturation	147	71	147	93
pH	8.2	6.8	8.1	7.1
Mineral constituents in parts per million				
Calcium (Ca)	37	8.1	18	15
Magnesium (Mg)	14	5.1	9.[illegible]	8.4
Sodium (Na)	18	2.9	13	6.[illegible]
Potassium (K)	2.7	[illegible].7	1.7	1.[illegible]
Carbonate (CO_3)	3	0.[illegible]	[illegible].0	0.[illegible]
Bicarbonate (HCO_3)	148	47	113	98
Sulfate (SO_4)	13	4.0	5.8	4.[illegible]
Chloride (Cl)	37	0.6	18	3.4
Nitrate (NO_3)	9.1	0.1	0.9	[illegible].1
Fluoride (F)	0.3	0.0	0.1	0.0
Boron (B)	0.20	0.0	[illegible].1	0.0
Silica (SiO_2)	28	18	27	24
Total dissolved solids in parts per million	228	52	149	104
Percent sodium	28	10	28	10
Hardness as $CaCO_3$ in parts per million				
Total	150	41	100	72
Noncarbonate	29	0.0	12	[illegible]
Turbidity	264	0.0	25	1
Coliform in most probable number per milliliter	>7,000.	0.046	2,400	0.[illegible]46
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.18	0.00	0.97	0.00
Solid alpha	0.89	0.00	0.89	0.28
Dissolved beta	2.09	0.00	0.33	0.00
Solid beta	10.7	0.00	2.87	1.82

WATER QUALITY VARIATIONS

COTTONWOOD CREEK NEAR COTTONWOOD (STA. 12b)

COTTONWOOD CREEK, SOUTH FORK ABOVE COTTONWOOD CREEK (STA. 11b)

Sampling Point The station is located in Section 17, Township 29 North, Range 4 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected at mid-stream from the Evergreen Road bridge, approximately 3.2 miles west of State Highway 99 and 1 mile upstream from the mouth.

Period of Record November 1958 through December 1959.

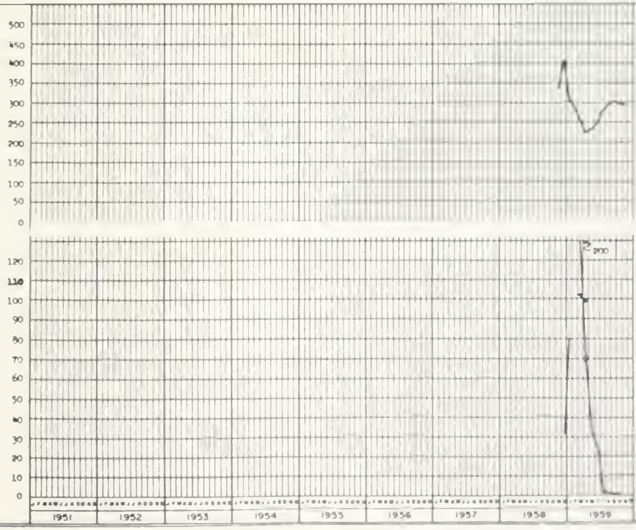
Water Quality Characteristics Water at this station is calcium bicarbonate in character, moderately hard, and class 1 for irrigation. The water is suitable for most industrial purposes and meets drinking water requirements for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	408	225	408	225
Temperature in °F	82	[illegible]	82	40
Dissolved oxygen in parts per million	12.8	5.1	12.8	5.1
Percent saturation	[illegible]	61	109	61
pH	7.9	7.2	7.9	7.2
Mineral constituents in parts per million				
Calcium (Ca)	43	23	36	23
Magnesium (Mg)	15	7.7	11	7.7
Sodium (Na)	17	8.4	14	8.4
Potassium (K)	2.0	1.5	2.0	1.5
Carbonate (CO_3)	2	[illegible]	2	[illegible]
Bicarbonate (HCO_3)	163	109	163	109
Sulfate (SO_4)	23	7.9	18	7.9
Chloride (Cl)	49	8.9	34	8.9
Nitrate (NO_3)	0.5	0.0	0.5	0.0
Fluoride (F)	0.2	0.0	0.2	0.0
Boron (B)	0.2	0.0	0.2	0.0
Silica (SiO_2)	22	10	22	10
Total dissolved solids in parts per million	234	136	200	136
Percent sodium	20	16	20	16
Hardness as $CaCO_3$ in parts per million				
Total	168	97	137	97
Noncarbonate	53	0.0	33	0.0
Turbidity	4	1	4	1
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.11	0.00	0.11	0.00
Solid alpha	0.47	0.09	0.47	0.09
Dissolved beta	3.30	2.18	3.30	2.18
Solid beta	2.43	0.98	2.43	0.98

WATER QUALITY VARIATIONS



COTTONWOOD CREEK, SOUTH FORK ABOVE COTTONWOOD CREEK (STA. 11b)

BATTLE CREEK NEAR COTTONWOOD (STA. 88b)

Sampling Point Station 88b is located in Section 6, Township 29 North, Range 2 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected on the right bank, at the USGS gaging station, 6.3 miles upstream from the mouth, and 7.6 miles east of Cottonwood.

Period of Record April 1958 through December 1959.

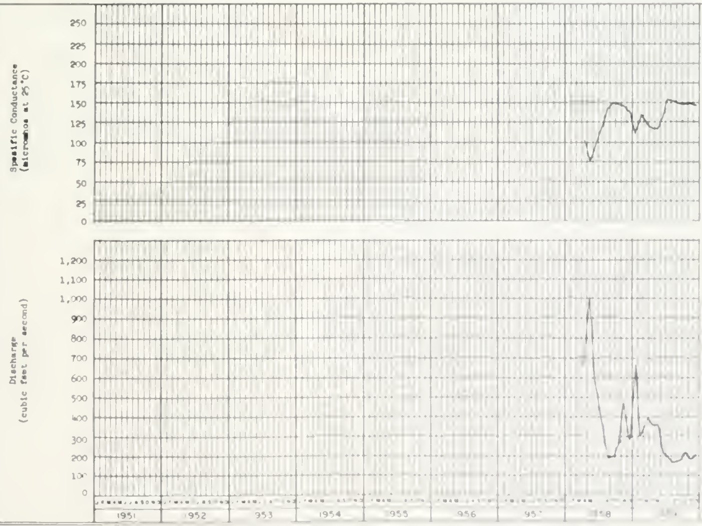
Water Quality Characteristics The water at Station 88b is bicarbonate in type with no predominant cation, excellent in quality, class 1 for irrigation, soft, and meets the requirements for drinking water. Mineral concentrations in water at Station 88b do not vary appreciably due to the effects of controlled flow resulting from upstream power developments.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	154	[illegible]	[illegible]	111
Temperature in °F	72	42	64	42
Dissolved oxygen in parts per million	12.6	[illegible]	12.6	8.7
Percent saturation	[illegible]	[illegible]	107	[illegible]
pH	8.2	[illegible]	[illegible]	7.4
Mineral constituents in parts per million				
Calcium (Ca)	12	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	7.5	3.6	7.4	[illegible]
Sodium (Na)	[illegible]	4.1	[illegible]	[illegible]
Potassium (K)	2.6	1.3	2.6	1.4
Carbonate (CO_3)	1	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	92	42	92	[illegible]
Sulfate (SO_4)	6.7	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	1.3	[illegible]	[illegible]	[illegible]
Fluoride (F)	0.2	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	53	30	53	[illegible]
Total dissolved solids in parts per million	132	71	132	[illegible]
Percent sodium	30	19	30	22
Hardness as $CaCO_3$ in parts per million				
Total	82	30	82	44
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	See 1959	See 1959	20	[illegible]
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			[illegible]	2.79
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS



BATTLE CREEK NEAR COTTONWOOD (STA. 88b)

PAYNES CREEK NEAR RED BLUFF (STA. 88g)

Sampling Point Red Bluff station is located in Section 3 of Township 28 North, Range 2 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, 100 yards upstream from Long Road bridge at Dales station, approximately 14 miles east of Red Bluff, and 7 miles upstream from the USGS gage, which is located 0.4 mile upstream from the mouth.

Period of Record October 1958 through December 1959.

Water Quality Characteristics Past analyses show water at this point to be magnesium bicarbonate in type, slightly hard and within drinking water standards. Boron concentrations occasionally cause the water to be class 2 for irrigation. Boron in this stream is attributable to the geologic formations inherent in the drainage basin.

Significant Water Quality Changes For several months during 1959 boron concentrations exceeded the limits of a class 1 irrigation water. Low flow conditions existing during 1959 did not provide enough dilution water to prevent boron concentrations from reaching class 2 irrigation limits.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	253	104	253	104
Temperature in °F	74	48	70	48
Dissolved oxygen in parts per million	11.9	7.6	11.4	7.6
Percent saturation	110	81	110	83
pH	8.2	7.0	8.2	7.0
Mineral constituents in parts per million				
Calcium (Ca)	16	7.2	16	7.2
Magnesium (Mg)	12	4.4	12	4.4
Sodium (Na)	24	6.5	24	6.5
Potassium (K)	2.8	1.1	2.8	1.2
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	125	43	125	43
Sulfate (SO_4)	16	[illegible]	16	[illegible]
Chloride (Cl)	20	6.5	20	6.5
Nitrate (NO_3)	5.0	0.0	5.0	0.0
Fluoride (F)	0.2	0.0	0.2	0.0
Boron (B)	0.5	0.1	0.5	0.1
Silica (SiO_2)	53	27	53	27
Total dissolved solids in parts per million	186	83	186	83
Percent sodium	38	27	38	27
Hardness as $CaCO_3$ in parts per million				
Total	82	36	82	36
Noncarbonate	1	0	1	0
Turbidity	See 1959	See 1959	10	3
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			0.50	0.09
Solid alpha			0.34	0.27
Dissolved beta			12.05	0.00
Solid beta			2.61	0.28

WATER QUALITY VARIATIONS

PAYNES CREEK NEAR RED BLUFF (STA. 88g)

West Side Stream Unit. The drainage area of the West Side stream unit occupies approximately 4,000 square miles along the west side of Sacramento Valley. Major streams draining the area include Redbank, Elder, Thomes, Stony, Cache, and Putah Creeks. Clear Lake is a large natural lake on Cache Creek and is a prominent feature of the drainage area. Foothills and mountains of the Coast Range cover about 75 percent of the unit. The aggregate natural runoff of the streams of the unit average about 1,900,000 acre-feet per year.

Commercial development in the unit is primarily based on agriculture and livestock raising. The foothills provide excellent grazing lands and the valley and mesa lands are suitable for numerous orchard and field crops. Recreation has been a major attraction in the Clear Lake area for many years and as water developments occur in other portions of this unit, recreation will command a more important place in their economy.

Several small communities, resort areas, and limited mining activities discharge wastes into the streams of this unit. Only minor impairment of water quality in these streams is attributable to this source.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this unit and the page on which each is discussed:

Monitoring Station	Page Number of Station Discussion
Redbank Creek near Red Bluff	192
Elder Creek near Paskenta	194
Elder Creek at Gerber	196
Thomes Creek at Paskenta	198
Thomes Creek near mouth	200
Stony Creek at Black Butte Dam Site	202
Stony Creek near Hamilton City	204
Clear Lake at Lakeport	206
Cache Creek near Lower Lake	208
Cache Creek near Capay	210
Cache Creek, North Fork near Lower Lake	212
Putah Creek near Winters	214

REDBANK CREEK NEAR RED BLUFF (STA. 88d)

Sampling Point Station 88d is situated in Section 22 of Township 26 North, Range 5 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from a private bridge approximately 100 feet north of Lowery Road, at the DWR gage, 2 miles southeast of Redbank and 15 miles northwest of Red Bluff.

Period of Record January 1959 through December 1959.

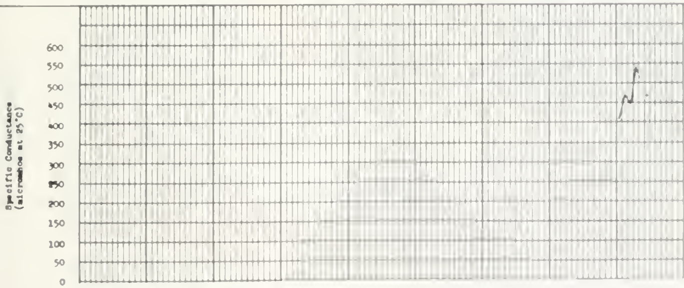
Water Quality Characteristics Based on limited data, water at Station 88d is calcium-magnesium bicarbonate in character, class 1 for irrigation, moderately hard to very hard and within drinking water standards for mineral content.

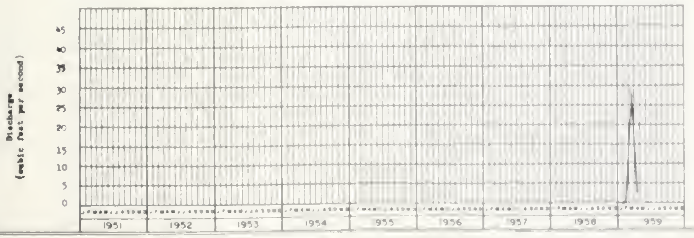
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - [illegible]	Minimum - [illegible]
Specific conductance (micromhos at 25°C)	See 1959	See 1959	[illegible]	[illegible]
Temperature in °F			[illegible]	[illegible]
Dissolved oxygen in parts per million			[illegible]	[illegible]
Percent saturation			[illegible]	[illegible]
pH			[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			[illegible]	[illegible]
Magnesium (Mg)			[illegible]	[illegible]
Sodium (Na)			[illegible]	[illegible]
Potassium (K)			[illegible]	[illegible]
Carbonate (CO_3)			9	[illegible]
Bicarbonate (HCO_3)			[illegible]	[illegible]
Sulfate (SO_4)			[illegible]	[illegible]
Chloride (Cl)			[illegible]	[illegible]
Nitrate (NO_3)			[illegible]	[illegible]
Fluoride (F)			[illegible]	[illegible]
Boron (B)			[illegible]	[illegible]
Silica (SiO_2)			21	[illegible]
Total dissolved solids in parts per million			[illegible]	226
Percent sodium			14	12
Hardness as $CaCO_3$ in parts per million				
Total			243	[illegible]
Noncarbonate			52	[illegible]
Turbidity (Not Measured)				
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS





REDBANK CREEK NEAR RED BLUFF (STA. 88d)

ELDER CREEK NEAR PASKENTA (STA. 13e)

Sampling Point The location of Station 13e is within Section 14 of Township 25 North, Range 6 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, at the USGS gage, 2.5 miles downstream from South Fork, 8 miles northeast of Flournoy, and 11 miles north of Paskenta.

Period of Record October 1958 through December 1959.

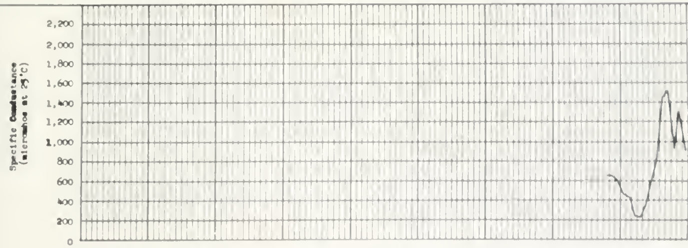
Water Quality Characteristics Analyses of samples show the water at Station 13e to be a bicarbonate type with none of the cations predominant. The water is very hard, but within drinking water standards for mineral content. Occasionally, conductivity causes the water at Station 13e to be class 2 for irrigation. Low flows late in the year offer very little dilution for accretions of poorer quality ground waters, probably accounting for the high conductivity.

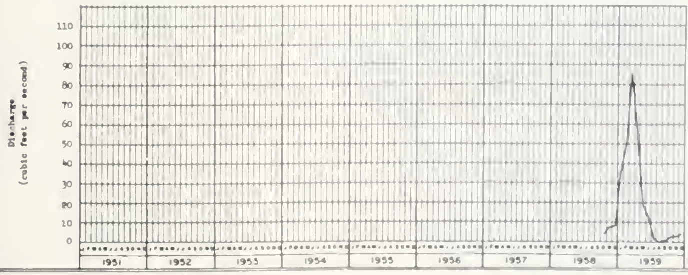
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	1,520	274	1,520	274
Temperature in °F	86	41	86	41
Dissolved oxygen in parts per million	12.5	7.8	11.6	7.8
Percent saturation	115	90	115	90
pH	8.3	7.6	8.3	7.6
Mineral constituents in parts per million				
Calcium (Ca)	69	21	69	21
Magnesium (Mg)	51	12	51	12
Sodium (Na)	156	7.7	156	7.7
Potassium (K)	3.6	0.4	3.6	0.4
Carbonate (CO_3)	6	0.0	6	0.0
Bicarbonate (HCO_3)	244	121	244	121
Sulfate (SO_4)	30	1.9	30	1.9
Chloride (Cl)	408	12	408	12
Nitrate (NO_3)	5.9	0.0	5.9	0.0
Fluoride (F)	0.2	0.0	0.2	0.0
Boron (B)	0.3	0.0	0.3	0.0
Silica (SiO_2)	24	14	24	14
Total dissolved solids in parts per million	770	134	779	134
Percent sodium	52	13	52	13
Hardness as $CaCO_3$ in parts per million				
Total	383	103	383	103
Noncarbonate	279	4	279	4
Turbidity	See 1959	See 1959	15	1
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			0.68	0.18
Solid alpha			0.27	0.20
Dissolved beta			8.52	0.00
Solid beta			[illegible].41	2.27

WATER QUALITY VARIATIONS





ELDER CREEK NEAR PASKENTA (STA. 13e)

ELDER CREEK AT GERBER (STA. 95a)

Sampling Point Elder Creek station is located within Saucos Grant in Section 2 of Township 25 North, Range 3 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the USGS gage, 3.5 miles upstream from the mouth, and 1.0 mile west of Gerber.

Period of Record January 1959 through December 1959.

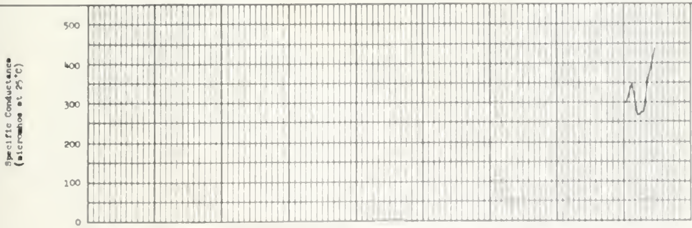
Water Quality Characteristics Based on limited analyses, the water is magnesium-calcium bicarbonate in character, class 1 for irrigation, moderately hard, and within acceptable limits for mineral content in drinking water. Only minor changes in concentrations (about 20 micromhos) occur between the Paskenta station and the Gerber station.

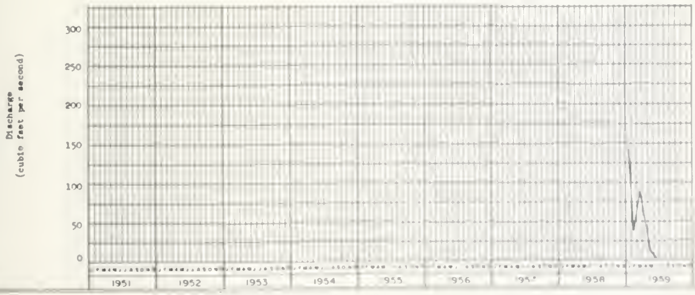
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See 1959	See 1959	441	267
Temperature in °F			74	65
Dissolved oxygen in parts per million			11.7	[illegible]
Percent saturation			1[illegible]4	84
pH			8.3	7.4
Mineral constituents in parts per million				
Calcium (Ca)			36	20
Magnesium (Mg)			27	16
Sodium (Na)			17	9.[illegible]
Potassium (K)			1.4	0.6
Carbonate (CO_3)			10	0
Bicarbonate (HCO_3)			226	101
Sulfate (SO_4)			23	4.8
Chloride (Cl)			29	12
Nitrate (NO_3)			7.6	[illegible]
Fluoride (F)			0.2	0.0
Boron (B)			0.2	0.[illegible]
Silica (SiO_2)			24	10
Total dissolved solids in parts per million			258	154
Percent sodium			21	14
Hardness as $CaCO_3$ in parts per million				
Total			200	118
Noncarbonate			35	5
Turbidity			0.0	
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha			0.30	
Solid alpha			0.37	
Dissolved beta			0.62	
Solid beta			0.70	

WATER QUALITY VARIATIONS





ELDER CREEK AT GERBER (STA. 95a)

THOMES CREEK AT PASKENTA (STA. 13d)

Sampling Point Station 13d is located in Section 4 of Township 23 North, Range 6 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, at the USGS gage, 0.25 mile upstream from Digger Creek and 0.3 mile upstream from the highway bridge at Paskenta.

Period of Record October 1958 through December 1959.

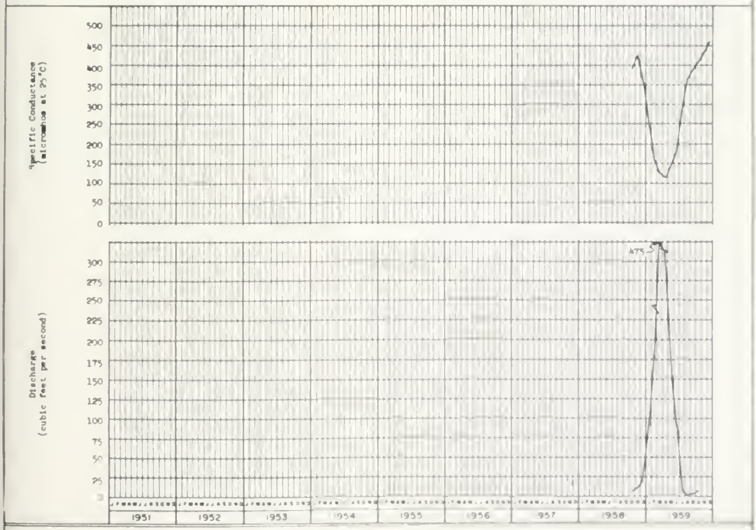
Water Quality Characteristics Analyses show the water at this station to be generally calcium bicarbonate in character, class 1 for irrigation, soft to moderately hard and within drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	463	116	463	116
Temperature in °F	82	42	82	42
Dissolved oxygen in parts per million	12.9	8.0	12.9	8.0
Percent saturation	127	93	127	93
pH	8.1	7.5	8.1	7.5
Mineral constituents in parts per million				
Calcium (Ca)	52	16	52	16
Magnesium (Mg)	20	3.2	17	3.2
Sodium (Na)	21	2.6	21	2.6
Potassium (K)	2.0	0.3	2.0	0.3
Carbonate (CO_3)	6	0.0	6	0.0
Bicarbonate (HCO_3)	188	61	188	61
Sulfate (SO_4)	40	3.8	40	3.8
Chloride (Cl)	43	2.0	43	2.0
Nitrate (NO_3)	0.6	0.0	0.6	0.0
Fluoride (F)	0.3	0.0	0.3	0.0
Boron (B)	0.3	0.0	0.3	0.0
Silica (SiO_2)	17	8.7	17	8.7
Total dissolved solids in parts per million	267	67	267	67
Percent sodium	21	9	21	9
Hardness as $CaCO_3$ in parts per million				
Total	198	53	198	53
Noncarbonate	57	3	57	3
Turbidity	See 1959	See 1959	3	1
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			0.58	0.00
Solid alpha			0.60	0.29
Dissolved beta			5.29	3.50
Solid beta			[illegible]	5.29

WATER QUALITY VARIATIONS



THOMES CREEK AT PASKENTA (STA 13d)

THOMES CREEK NEAR MOUTH (STA. 95b)

Sampling Point Thomes Creek station is located in Section 35 of Township 25 North, Range 3 West, Mt. Diablo Base and Meridian. Monthly water samples were collected from the center of the channel of flow from the Highway 99W bridge at Richfield, 3 miles north of Corning, 14.5 miles south of Red Bluff, and 4.5 miles upstream from the mouth.

Period of Record January 1959 through December 1959.

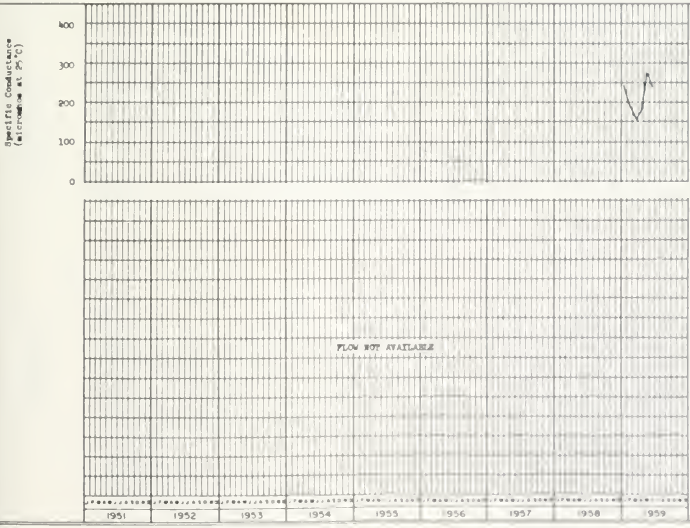
Water Quality Characteristics Water at Station 95b is calcium bicarbonate in character, class 1 for irrigation, slightly to moderately hard, and within the recommended standards for mineral content in drinking water. During the first half of the calendar year the concentration of constituents at this station are slightly higher than at Station 13d about 20 miles upstream. As irrigation commenced and natural runoff decreased in this area, the conductivity differential between the upstream station and Station 95b increased from a few micromhos to about 85 micromhos.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum 1959	Minimum 1959
Specific conductance (micromhos at 25°C)	See 19[illegible]	See 19[illegible]	27[illegible]	[illegible]
Temperature in °F			[illegible]	[illegible]
Dissolved oxygen in parts per million			[illegible]	[illegible]
Percent saturation			[illegible]	[illegible]
pH			8.[illegible]	7.[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			33	[illegible]
Magnesium (Mg)			12	[illegible]
Sodium (Na)			9	[illegible]
Potassium (K)			1.[illegible]	[illegible]
Carbonate (CO_3)			[illegible]	[illegible]
Bicarbonate (HCO_3)			144	[illegible]
Sulfate (SO_4)			30	[illegible]
Chloride (Cl)			12	[illegible]
Nitrate (NO_3)			6.[illegible]	[illegible]
Fluoride (F)			[illegible]	[illegible]
Boron (B)			[illegible]	[illegible]
Silica (SiO_2)			16	9.6
Total dissolved solids in parts per million			167	91
Percent sodium			15	9
Hardness as $CaCO_3$ in parts per million				
Total			130	71
Noncarbonate			32	5
Turbidity (Not Measured)				
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha			30	
Solid alpha			0.00	
Dissolved beta			2.08	
Solid beta			3.69	

WATER QUALITY VARIATIONS



THOMES CREEK NEAR MOUTH (STA. 95b)

STONY CREEK AT BLACK BUTTE DAM SITE (STA. 13c)

Sampling Point Station 13c is situated within Section 29 of Township 23 North, Range 4 West, Mt. Diablo Base and Meridian. Monthly grab samples of water were collected from the right bank in the vicinity of the USGS gage, 120 feet downstream from the diversion dam, and 8.7 miles northwest of Orland.

Period of Record January 1958 through December 1959.

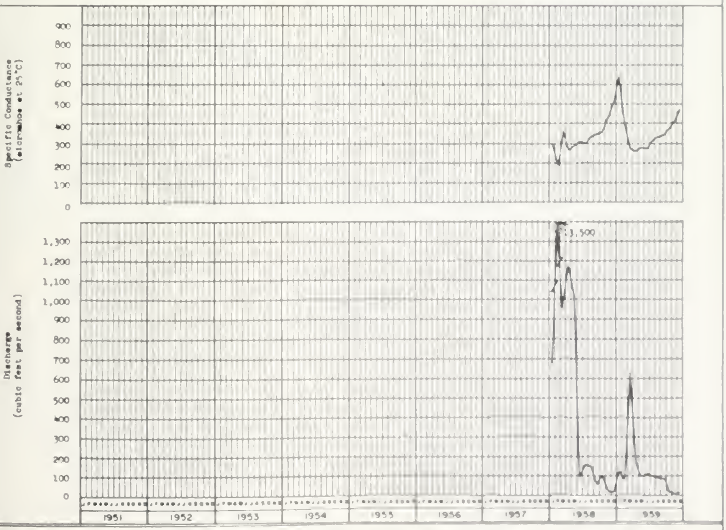
Water Quality Characteristics Stony Creek at Black Butte Dam Site is calcium-magnesium bicarbonate in character, class 1 for irrigation, ranges from slightly hard to very hard and meets drinking water standards for mineral content.

Significant Water Quality Changes A significant decrease in radioactivity was noted during 1959. The total activity decreased from 18.3 μμc/l in May to 5.7 μμc/l in September. The higher value reported is still well within safe limits.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	634	196	634	280
Temperature in °F	78	46	78	50
Dissolved oxygen in parts per million	11.3	7.7	10.9	7.9
Percent saturation	105	87	105	90
pH	8.1	7.4	8.1	7.6
Mineral constituents in parts per million				
Calcium (Ca)	55	28	55	28
Magnesium (Mg)	24	9.5	24	9.5
Sodium (Na)	42	7.2	42	10
Potassium (K)	2.1	0.4	1.4	[illegible]
Carbonate (CO_3)	5	[illegible]	4	0.0
Bicarbonate (HCO_3)	229	102	229	121
Sulfate (SO_4)	60	11	60	11
Chloride (Cl)	85	6.0	85	13
Nitrate (NO_3)	3.5	0.0	3.5	0.0
Fluoride (F)	0.2	0.0	0.2	0.0
Boron (B)	0.5	0.0	0.5	0.1
Silica (SiO_2)	25	9.1	25	9.1
Total dissolved solids in parts per million	371	114	371	151
Percent sodium	28	13	28	13
Hardness as $CaCO_3$ in parts per million				
Total	234	88	234	109
Noncarbonate	89	0.0	89	0.0
Turbidity	150	3	50	20
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.58	0.00	0.58	0.00
Solid alpha	0.42	0.26	0.40	0.26
Dissolved beta	5.21	1.52	5.21	3.94
Solid beta	12.12	1.54	12.12	1.54

WATER QUALITY VARIATIONS



STONY CREEK AT BLACK BUTTE DAM SITE (STA 13c)

STONY CREEK NEAR HAMILTON CITY (STA. 13a)

Sampling Point Hamilton City station is located in Section 36 of Township 22 North, Range 2 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the USGS gage, 8 miles east of Orland, 2.5 miles southwest of Hamilton City, and 4 miles upstream from the mouth.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Past analyses show the water at the station to be generally calcium bicarbonate to calcium-magnesium bicarbonate in character, slightly to moderately hard and within drinking water standards for mineral content. With one exception in respect to boron (August 1954 - 0.64 ppm), it has been class 1 irrigation water throughout the period of record.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	523	157	523	289
Temperature in °F	86	41	71	48
Dissolved oxygen in parts per million	13.1	5.6	11.8	6.9
Percent saturation	125	66	109	77
pH	8.5	7.0	8.1	7.5
Mineral constituents in parts per million				
Calcium (Ca)	42	22	36	
Magnesium (Mg)	18	6.3	13	
Sodium (Na)	28	6.6	28	13
Potassium (K)	2.3	0.6	0.9	
Carbonate (CO_3)	8	0.0	0.0	0.0
Bicarbonate (HCO_3)	197	84	166	130
Sulfate (SO_4)	22	13	14	
Chloride (Cl)	31	4	64	17
Nitrate (NO_3)	0.8	0.0	0.0	
Fluoride (F)	0.2	0.0	0.0	
Boron (B)	0.64	0.0	0.2	0.0
Silica (SiO_2)	18	10	11	
Total dissolved solids in parts per million	301	90	301	166
Percent sodium	24	14	24	17
Hardness as $CaCO_3$ in parts per million				
Total	192	65	192	124
Noncarbonate	67	0.0	67	8
Turbidity	350	0.0	30	0
Coliform in most probable number per milliliter	2,400.	0.23	230	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.48	0.00	0.48	
Solid alpha	1.18	0.00	0.40	
Dissolved beta	2.48	0.00	0.00	
Solid beta	9.62	0.00	5.46	

WATER QUALITY VARIATIONS

STONY CREEK NEAR HAMILTON CITY (STA. 13a)

CLEAR LAKE AT LAKEPORT (STA. 41)

Sampling Point Station 41, the only active station on Clear Lake during 1959, is located in Section 24 of Township 14 North, Range 10 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the end of the pier at the foot of Third Street at the north end of the park in Lakeport.

Period of Record April 1951 through December 1959.

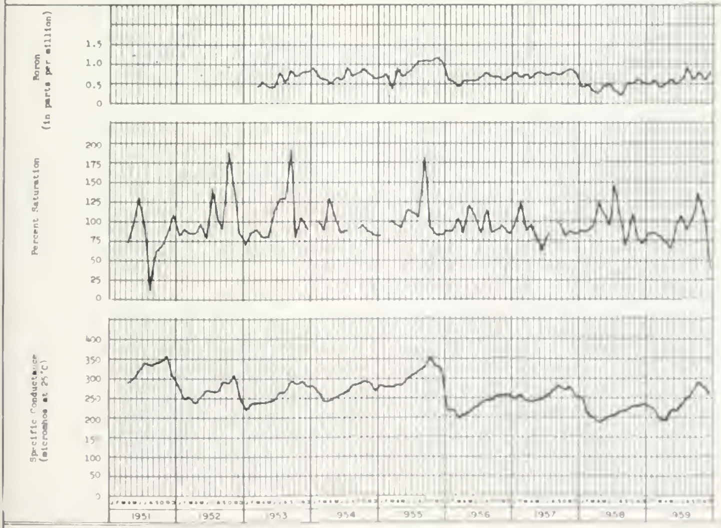
Water Quality Characteristics Antecedent data show the water of Clear Lake to be characteristically calcium-magnesium bicarbonate, slightly hard to moderately hard and within drinking water standards for mineral content. Boron, which has reached 1.23 ppm, frequently causes the water to be class 2 for irrigation use. Geologic formations and runoff from highly mineralized springs are considered to be the source of boron in Clear Lake.

Significant Water Quality Changes Boron continued to frequently exceed the 0.5 ppm maximum for class 1 irrigation use during 1959, causing the water in Clear Lake to be class 2 for eight months of 1959. Total radioactivity increased significantly from 1.2 μμc/l found in May to 15.7 μμc/l in September. However, the September value is still within safe limits.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	358	187	[illegible]	191
Temperature in °F	86	41	78	45
Dissolved oxygen in parts per million	16.[illegible]	1.[illegible]	11.6	4.4
Percent saturation	192	12	114	60
pH	8.7	6.8	[illegible]	7.1
Mineral constituents in parts per million				
Calcium (Ca)	30	17	24	21
Magnesium (Mg)	20	10	13	11
Sodium (Na)	17	6.4	1[illegible]	6.7
Potassium (K)	2.8	1.4	1.9	[illegible].8
Carbonate (CO_3)	11	0.0	3	[illegible]
Bicarbonate (HCO_3)	212	1[illegible]4	165	1[illegible]4
Sulfate (SO_4)	12	[illegible].8	11	[illegible]
Chloride (Cl)	10	3.5	7.5	3.6
Nitrate (NO_3)	4.[illegible]	0.1	1.9	[illegible].2
Fluoride (F)	0.4	[illegible]	[illegible].2	[illegible]
Boron (B)	1.23	[illegible].2	[illegible].9	0.4
Silica (SiO_2)	16	[illegible].7	11	3.6
Total dissolved solids in parts per million	199	105	162	107
Percent sodium	19	13	18	14
Hardness as $CaCO_3$ in parts per million				
Total	158	82	123	85
Noncarbonate	3	0.0	3	[illegible]
Turbidity	140	0.4	140	6
Coliform in most probable number per milliliter	>7,000.	<0.045	2,400	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.10	0.00	[illegible]	[illegible]
Solid alpha	[illegible].59	[illegible]	.26	0.20
Dissolved beta	12.60	0.00	8.91	[illegible].91
Solid beta	10.80	[illegible]	[illegible]	0.00

WATER QUALITY VARIATIONS



CLEAR LAKE AT LAKEPORT (STA. 41)

CACHE CREEK NEAR LOWER LAKE (STA. 42)

Sampling Point Station 42, which monitors outflow from Clear Lake to Cache Creek, is situated in Section 6 of Township 12 North, Range 6 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank at the USGS gage, approximately 500 feet downstream from Cache Creek Dam, 3.5 miles east of State Highway 53, and 5 miles southeast of Lower Lake.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Analyses show Cache Creek water to be similar to the water found in Clear Lake at Lakeport, calcium-magnesium bicarbonate in character, slightly hard to moderately hard, and to consistently meet drinking water standards for mineral content. Boron frequently causes this water to be class 2 for irrigation use and at times (December 1953 and January 1954) places it in the class 3 irrigation water category. Only minor differences have been noted between the concentration of most constituents found at the Lakeport station on Clear Lake and Station 42.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	8.7	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	3.9	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	241	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	36	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	2.2	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	272	76	167	[illegible]
Percent sodium	23	[illegible]	20	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	200	[illegible]	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	20	[illegible]
Coliform in most probable number per milliliter	>7,000	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	0.51	[illegible]	[illegible]	[illegible]
Dissolved beta	23.8	[illegible]	[illegible]	[illegible]
Solid beta	4.08	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS

CACHE CREEK NEAR LOWER LAKE (STA. 42)

CACHE CREEK NEAR CAPAY (STA. 80)

Sampling Point The Capay station is located in Section 8 of Township 10 North, Range 2 West, Mt. Diablo Base and Meridian. Monthly grab samples of this water were collected from the right bank at the USGS gage, 2 miles upstream from the Clear Lake Water Company diversion dam, and 3 miles northwest of Capay.

Period of Record December 1951 through December 1959.

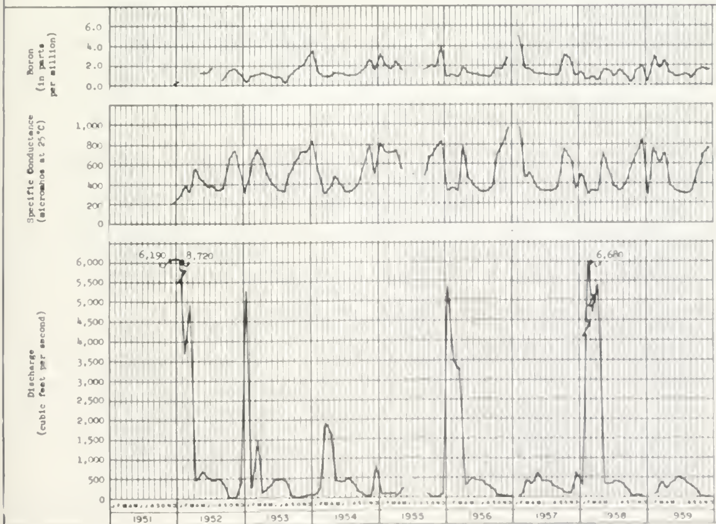
Water Quality Characteristics Cache Creek water at Station 80, as at upstream stations, is magnesium-calcium bicarbonate in character, moderately hard to very hard, within mineral standards for drinking water, and varies from class 1 to 3 for irrigation due to boron. Boron causes the water to be class 2 or 3 for irrigation during the major part of the year, with only flows following heavy precipitation being diluted to class 1 for irrigation. The effects of North Fork tributary flow have perennially been reflected by significant increases in most constituents in Cache Creek between Lower Lake and Capay. Boron concentrations and conductivity have an average increase in this reach of about 0.6 ppm and 240 micromhos, respectively.

Significant Water Quality Changes During 1959, the total radioactivity increased from 6.4 μμc/l in May to 15.16 μμc/l in September. Although these levels are slightly higher than levels detected in previous years, they are within safe limits.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	210	[illegible]	[illegible]
Temperature in °F	[illegible]	41	82	[illegible]
Dissolved oxygen in parts per million	[illegible]	7.8	[illegible]	[illegible]
Percent saturation	121	87	[illegible]	87
pH	8.4	[illegible]	8.2	7.7
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	11	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	12	[illegible]	[illegible]
Potassium (K)	3.6	[illegible]	2.5	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	8	[illegible]
Bicarbonate (HCO_3)	343	114	[illegible]	[illegible]
Sulfate (SO_4)	56	[illegible]	15	[illegible]
Chloride (Cl)	149	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	2.4	[illegible]	[illegible]	[illegible]
Fluoride (F)	0.3	[illegible]	[illegible]	[illegible]
Boron (B)	5.0	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	20	3.4	4.6	[illegible]
Total dissolved solids in parts per million	540	117	423	159
Percent sodium	42	16	40	22
Hardness as $CaCO_3$ in parts per million				
Total	348	106	276	[illegible]
Noncarbonate	97	[illegible]	30	[illegible]
Turbidity	1,800	[illegible]	25	1
Coliform in most probable number per milliliter	2,400	[illegible]	620	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.81	0.00	0.26	[illegible]
Solid alpha	0.69	0.00	[illegible]	[illegible]
Dissolved beta	7.58	0.00	7.58	2.22
Solid beta	[illegible]	0.00	[illegible]	[illegible]

WATER QUALITY VARIATIONS



CACHE CREEK NEAR CAPAY (STA. 80)

CACHE CREEK, NORTH FORK NEAR LOWER LAKE (STA. 79)

Sampling Point Station 79 is located in Section 31 of Township 14 North, Range 6 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the USGS gage, 2.7 miles upstream from State Highway 20 bridge, 6 miles east of Clear Lake Oaks, and 10 miles north of Lower Lake.

Period of Record December 1951 through December 1959.

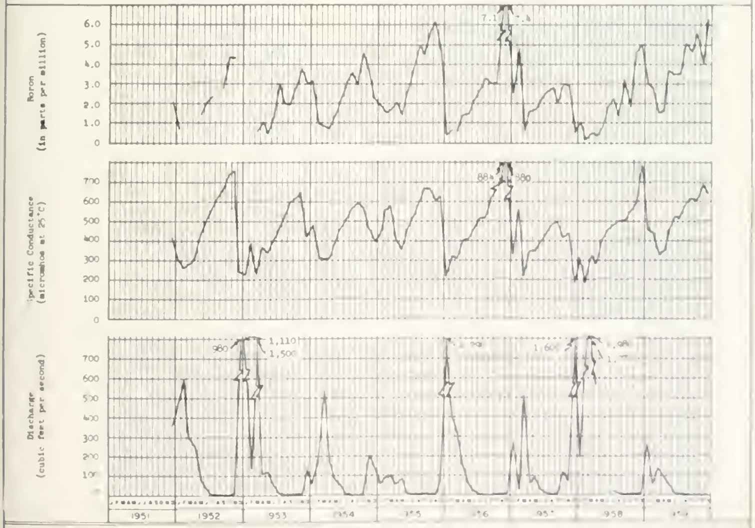
Water Quality Characteristics Samples of North Fork Cache Creek water indicate a characteristically magnesium-calcium bicarbonate water that ranges from slightly hard to very hard but consistently meets drinking water standards for mineral content. Boron concentration usually causes Cache Creek water to be class 2 for irrigation use and frequently class 3. Only during extremely wet seasons is boron found in concentrations less than the 0.5 ppm limit for class 1 irrigation water. North Fork Cache Creek drains an area containing numerous hot springs which have high concentrations of borates and other minerals which, even under pristine conditions, would cause high boron in runoff from the area. The quality of North Fork Cache Creek reflects the effects of drainage from the springs in the area. The concentration of constituents at this station are higher than those found in Clear Lake. During 1959 boron caused the water to be class 3 for irrigation use during ten months of the year and class 2 during the remaining two.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	884	181	[illegible]	[illegible]
Temperature in °F	[illegible]	19	84	44
Dissolved oxygen in parts per million	14.6	[illegible]	12.9	[illegible]
Percent saturation	[illegible]	[illegible]	128	[illegible]
pH	[illegible]	[illegible]	8.1	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	16	44	31
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	15	[illegible]	12	[illegible]
Bicarbonate (HCO_3)	287	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	90	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	1.6	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	7.6	[illegible]	6.2	[illegible]
Silica (SiO_2)	24	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	[illegible]	102	393	[illegible]
Percent sodium	[illegible]	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	344	76	266	[illegible]
Noncarbonate	67	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	[illegible]	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved beta	12.64	[illegible]	[illegible]	[illegible]
Solid beta	[illegible]	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS



CACHE CREEK, NORTH FORK NEAR LOWER LAKE (STA. 79)

PUTAH CREEK NEAR WINTERS (STA. 81)

Sampling Point Station 81 is located in Section 28 of Township 8 North, Range 2 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, 1 mile downstream from the USGS gage, 8.2 miles west of Winters.

Period of Record December 1951 through December 1959.

Water Quality Characteristics Past analyses of samples collected at Station 81 indicate a water of calcium-magnesium to magnesium-calcium bicarbonate character, slightly hard to very hard and of acceptable mineral content for drinking water. However, because of boron, it ranges from class 1 to class 2 for irrigation. Runoff from highly mineralized springs and leaching of geologic formations account for the boron in the basin.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	636	[illegible]
Temperature in °F	86	[illegible]	84	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	22	126	88
pH	[illegible]	[illegible]	8.2	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	13	[illegible]	[illegible]
Sodium (Na)	[illegible]	6.6	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	79	[illegible]	18	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	2.7	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	29	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	520	88	[illegible]	[illegible]
Percent sodium	28	6	28	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	[illegible]	183	[illegible]
Noncarbonate	55	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	8
Coliform in most probable number per milliliter	>7,000	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved beta	[illegible]	[illegible]	5.81	[illegible]
Solid beta	[illegible]	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS

PUTAH CREEK NEAR WINTERS (STA. 81)

Sacramento Valley Northeast Stream Unit. Several small stream basins which drain the 1,140 square miles east of the northeastern portion of Sacramento Valley are included in this unit. These streams originate in the Sierra Nevada and flow along steep parallel courses to the valley floor. They have only minor tributaries and little development along their route. Principal streams in the unit, from north to south, are Antelope, Mill, Deer, Big Chico, and Butte Creeks. Annual natural mean runoff is about 1,180,000 acre-feet.

The terrain of these basins is almost entirely mountainous with only a few headwater valleys adaptable to irrigated agriculture. Agricultural, livestock raising, mining, recreational, and lumbering activities are carried on in these basins.

There are no significant waste discharges entering streams in this unit.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this unit and the page on which each is discussed:

Monitoring Station	Page Number of Station Discussion
Antelope Creek near Red Bluff	218
Antelope Creek near mouth	220
Mill Creek near Los Molinos	222
Big Chico Creek near Chico	224
Big Chico Creek at Chico	226
Butte Creek near Chico	228

ANTELOPE CREEK NEAR RED BLUFF (STA. 88e)

Sampling Point Red Bluff station is located in Section 8 of Township 27 North, Range 2 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, approximately 3 miles east of Highway 99E on Belle Mill Road, and 8.5 miles east of Red Bluff.

Period of Record October 1958 through December 1959.

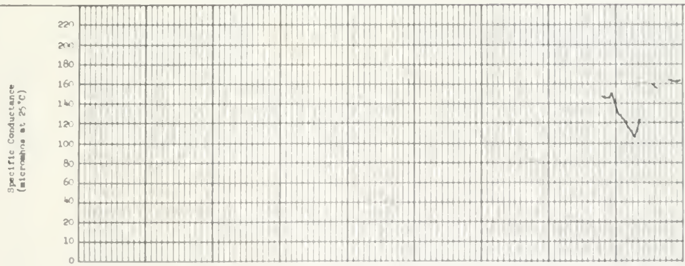
Water Quality Characteristics Antelope Creek water at the Red Bluff station is bicarbonate in type with no predominant cation, soft to slightly hard, class 1 for irrigation, and suitable for industrial and domestic uses.

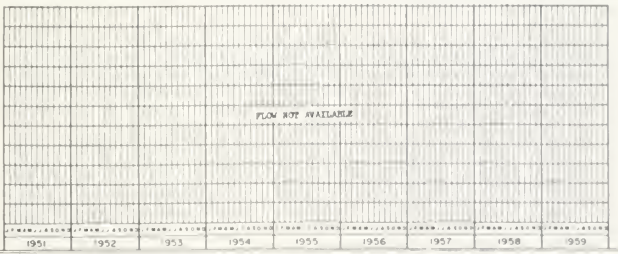
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	82	[illegible]	[illegible]	42
Dissolved oxygen in parts per million	[illegible]	[illegible]	12.[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	14	[illegible]	14	[illegible]
Magnesium (Mg)	[illegible]	4.6	[illegible]	4.6
Sodium (Na)	14	6.[illegible]	14	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	11	[illegible]	11	[illegible]
Nitrate (NO_3)	2.1	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	41	[illegible]	41	[illegible]
Total dissolved solids in parts per million	145	[illegible]	145	[illegible]
Percent sodium	31	22	[illegible]	22
Hardness as $CaCO_3$ in parts per million				
Total	64	41	64	41
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]			
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959			
Dissolved alpha			[illegible]10	
Solid alpha			0.55	
Dissolved beta			9.49	
Solid beta			3.49	

WATER QUALITY VARIATIONS





ANTELOPE CREEK NEAR RED BLUFF (STA. 88e)

ANTELOPE CREEK NEAR MOUTH (STA. 88c)

Sampling Point Station 88c is located in Section 17 of Township 26 North, Range 2 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected at State Highway 99E bridge, approximately 1.5 miles above the mouth, and about 9 miles southeast of the town of Red Bluff.

Period of Record October 1958 through December 1959.

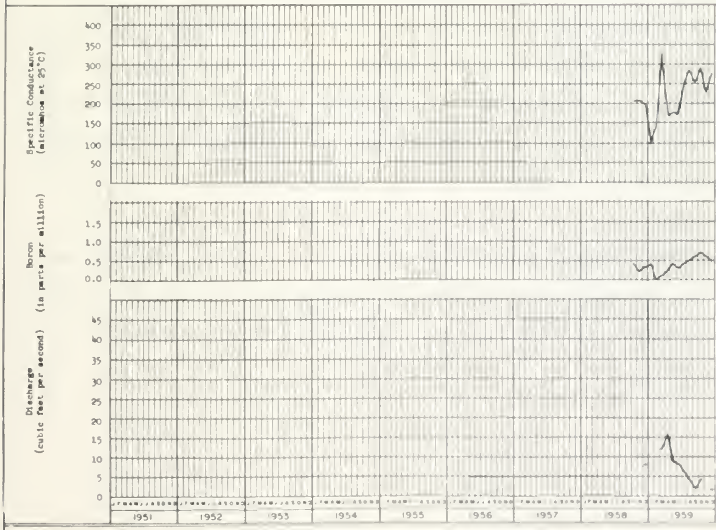
Water Quality Characteristics Past analyses show the water to be bicarbonate in type with no predominant cation, slightly hard and class 1 for irrigation. Comparison of analyses of samples of water from Antelope Creek near mouth with those from near Red Bluff show a minor increase (25-100 micromhos) in most constituents. The increase in mineral concentrations is attributable to irrigation return flow and minor waste entering Antelope Creek in the reach between these two stations.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	82	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	7[illegible]	[illegible]	[illegible]
pH	7.4	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	25	[illegible]	25	[illegible]
Magnesium (Mg)	20	4.6	[illegible]	[illegible]
Sodium (Na)	24	4.4	24	[illegible]
Potassium (K)	5.[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	160	29	[illegible]	[illegible]
Sulfate (SO_4)	31	3.8	3[illegible]	[illegible]
Chloride (Cl)	32	6	32	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	217	81	217	81
Percent sodium	38	[illegible]	38	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	143	39	143	39
Noncarbonate	15	[illegible]	15	[illegible]
Turbidity	5	2	5	2
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			[illegible]	[illegible]
Solid beta			[illegible]	[illegible]

WATER QUALITY VARIATIONS



ANTELOPE CREEK NEAR MOUTH (STA. 88c)

Sampling Point Station 88 is located in Section 9 of Township 25 North, Range 2 West, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, below State Highway 99E bridge, about 1.5 miles north of Los Molinos.

Period of Record July 1952 through December 1959.

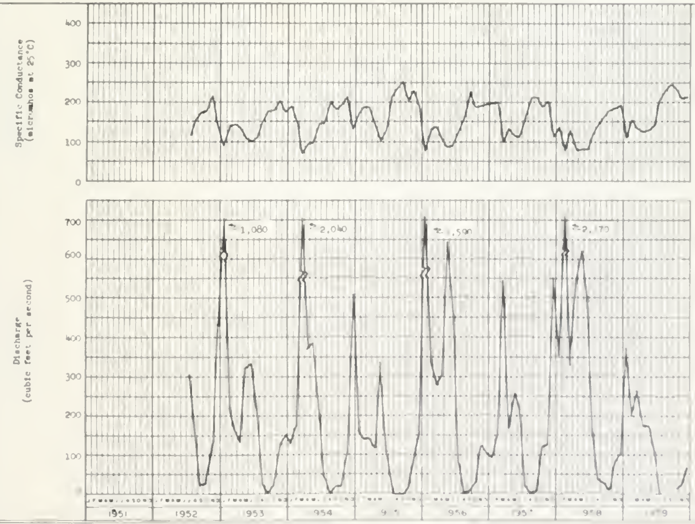
Water Quality Characteristics Generally the water at this station is bicarbonate in type with sodium in excess of the other cations, drinking water requirements for mineral content are met, hardness ranges from soft to slightly hard, and the water is good for most industrial uses. Boron periodically places this water in class 2 for irrigation during periods of low flow.

Significant Water Quality Changes During 1959 mineral concentrations varied somewhat from maximum-minimum ranges established during previous years. Calcium and sulfates reached 20 ppm, chlorides 28 ppm, and boron 0.8 ppm, all representing the highest values reported during the period of record. Silica ranged from 44 to 30 ppm, representing the greatest variation for the period of record. Surface runoff during the year was somewhat lower than average and the smaller amount of dilution water available probably accounted for the increase in mineral concentrations. Also, the considerable use made of the water in Mill Creek for irrigated agriculture and related irrigation returns undoubtedly affected the quality.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	252	7[illegible]	247	109
Temperature in °F	93	37	[illegible]	45
Dissolved oxygen in parts per million	[illegible]	7.[illegible]	1[illegible]	8.[illegible]
Percent saturation	1[illegible]	84	[illegible]	94
pH	8.3	6.[illegible]	7.8	7.[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	20	6.2	20	8.8
Magnesium (Mg)	9.3	1.1	8.3	[illegible]
Sodium (Na)	21	4.1	20	7.1
Potassium (K)	3.8	1.[illegible]	3.[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	98	25	91	40
Sulfate (SO_4)	20	7.7	20	11
Chloride (Cl)	28	2.5	28	9[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	0.8	[illegible]	0.8	[illegible]
Silica (SiO_2)	44	26	44	30
Total dissolved solids in parts per million	178	52	178	81
Percent sodium	43	22	41	28
Hardness as $CaCO_3$ in parts per million				
Total	88	22	84	38
Noncarbonate	22	[illegible]	12	[illegible]
Turbidity	55	[illegible]	19	[illegible]
Coliform in most probable number per milliliter	See 1959	See 1959	2,400	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha			0.34	
Solid alpha			0.43	
Dissolved beta			[illegible]	
Solid beta			[illegible]	

WATER QUALITY VARIATIONS



MILL CREEK NEAR LOS MOLINOS (STA. 88)

BIG CHICO CREEK NEAR CHICO (STA. 85)

Sampling Point Station 85 is located in Section 9 of Township 22 North, Range 2 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank at the USGS gage, approximately 6 miles northeast of Chico and 12.9 miles upstream from the mouth.

Period of Record July 1952 through December 1959.

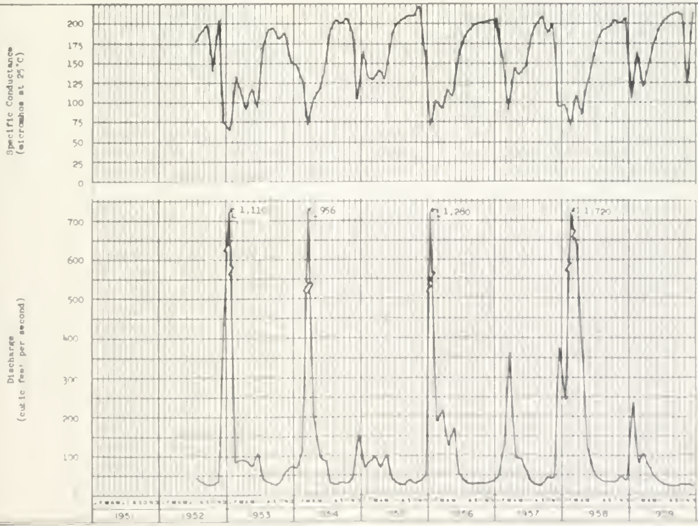
Water Quality Characteristics Past records show the water to be consistently good to excellent in quality, calcium-magnesium or magnesium-calcium bicarbonate in type, class 1 for irrigation, soft to slightly hard, and very good for domestic and industrial purposes.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	291	65	215	105
Temperature in °F	77	36	76	43
Dissolved oxygen in parts per million	13.4	7.6	12.4	7.6
Percent saturation	113	83	100	[illegible]
pH	8.5	6.8	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	20	[illegible]	20	14
Magnesium (Mg)	9.8	2.8	7.1	6.8
Sodium (Na)	17	2.2	16	3.9
Potassium (K)	2.3	[illegible]	1.3	[illegible]
Carbonate (CO_3)	3	0.0	1	[illegible]
Bicarbonate (HCO_3)	115	37	113	49
Sulfate (SO_4)	6.3	[illegible]	[illegible]	[illegible]
Chloride (Cl)	18	0.4	12	1.5
Nitrate (NO_3)	1.3	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	0.0
Boron (B)	0.3	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	42	30	40	39
Total dissolved solids in parts per million	162	47	156	77
Percent sodium	33	13	31	13
Hardness as $CaCO_3$ in parts per million				
Total	92	27	92	[illegible]
Noncarbonate	9	[illegible]	2	[illegible]
Turbidity	20	[illegible]	20	0.0
Coliform in most probable number per milliliter	[illegible]	2.30	620	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



BIG CHICO CREEK NEAR CHICO (STA. 85)

BIG CHICO CREEK AT CHICO (STA. 85a)

Sampling Point Station 85a is located in Section 28 of Township 22 North, Range 1 East, Mt. Diablo Base and Meridian. Monthly water samples were collected from the Rose Avenue bridge, at the intersection of Rose and Bidwell Avenues, in the City of Chico.

Period of Record January 1959 through December 1959.

Water Quality Characteristics The water at Station 85a is excellent in quality, a bicarbonate type with calcium dominant over other cations, class 1 for irrigation, soft to slightly hard and has a mineral content which meets drinking water requirements.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See 1959	See 1959	[illegible]	[illegible]
Temperature in °F			7[illegible]	66
Dissolved oxygen in parts per million			[illegible]	[illegible]
Percent saturation			[illegible]	[illegible]
pH			[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			[illegible]	[illegible]
Magnesium (Mg)			[illegible]	[illegible]
Sodium (Na)			[illegible]	[illegible]
Potassium (K)			[illegible]	[illegible]
Carbonate (CO_3)			[illegible]	[illegible]
Bicarbonate (HCO_3)			[illegible]	[illegible]
Sulfate (SO_4)			[illegible]	[illegible]
Chloride (Cl)			[illegible]	[illegible]
Nitrate (NO_3)			[illegible]	[illegible]
Fluoride (F)			[illegible]	[illegible]
Boron (B)			[illegible]	[illegible]
Silica (SiO_2)			47	27
Total dissolved solids in parts per million			168	79
Percent sodium			32	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total			80	[illegible]
Noncarbonate			[illegible]	[illegible]
Turbidity (Not Measured)				
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha			[illegible]	
Solid alpha			[illegible]	
Dissolved beta			2.22	
Solid beta			2.5[illegible]	

WATER QUALITY VARIATIONS

BIG CHICO CREEK AT CHICO (STA. 85a)

BUTTE CREEK NEAR CHICO (STA. 84)

Sampling Point Station 84 is located in Section 36 of Township 22 North, Range 2 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank at the USGS gage, 0.8 mile downstream from Little Butte Creek, and 7.5 miles east of Chico.

Period of Record July 1952 through December 1959.

Water Quality Characteristics The character of the water at Station 84 is generally bicarbonate with no predominant cation; however, occasionally it changes to calcium bicarbonate. Chemical analyses show very little variation in quality occurs and that the water is soft, class 1 for irrigation, meets drinking water standards, and is excellent for industrial uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	12.8	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	6.9	8.1	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	1.2	[illegible]	[illegible]
Sodium (Na)	6.4	1.2	4.8	2.6
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	76	[illegible]
Sulfate (SO_4)	4.8	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	26	17	24	[illegible]
Total dissolved solids in parts per million	94	35	[illegible]	[illegible]
Percent sodium	23	[illegible]	18	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	58	21	[illegible]	[illegible]
Noncarbonate	12	[illegible]	2	[illegible]
Turbidity	50	[illegible]	20	[illegible]
Coliform in most probable number per milliliter	620	0.21	620	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS

BUTTE CREEK NEAR CHICO (STA. 84)

Feather River Basin. Feather River drainage is composed of numerous tributaries which form a dendritic pattern on 3,740 square miles in the northeastern portion of the Central Valley Region. The topography of the area is predominantly mountainous with only 687 square miles classified as valley and mesa lands. The average seasonal runoff of the Feather River Basin is 4,596,000 acre-feet.

Feather River, the major tributary to Sacramento River, rises in large headwater valleys located high in the Sierra Nevada. Flowing out of these valley or meadow areas the river cascades down the steep granitic slopes of the Sierra. In the foothills and along the valley floor the Feather River gradient gradually flattens out and at its mouth the river is considerably stilled.

Lumbering, recreation, and livestock raising are the main economic pursuits in the upper reaches of this basin. In the foothill and valley area agriculture is the predominant enterprise.

Log ponds, small resort areas, and communities located along the waterway all discharge waste into the river system. The only discharges of significant quantity, however, are from the Cities of Oroville (0.8 mgd), Gridley (>0.5 mgd), Yuba City (4 mgd), and Marysville (1.8 mgd). Waste discharges have not created significant impairment problems in this basin.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

FEATHER RIVER AT NICOLAUS (STA. 20)

Sampling Point Station 20 is situated in Section 12 of Township 12 North, Range 3 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, at the USGS gage on Garden Highway bridge at Nicolaus, and 2.9 miles downstream from the confluence with Bear River.

Period of Record April 1951 through December 1959.

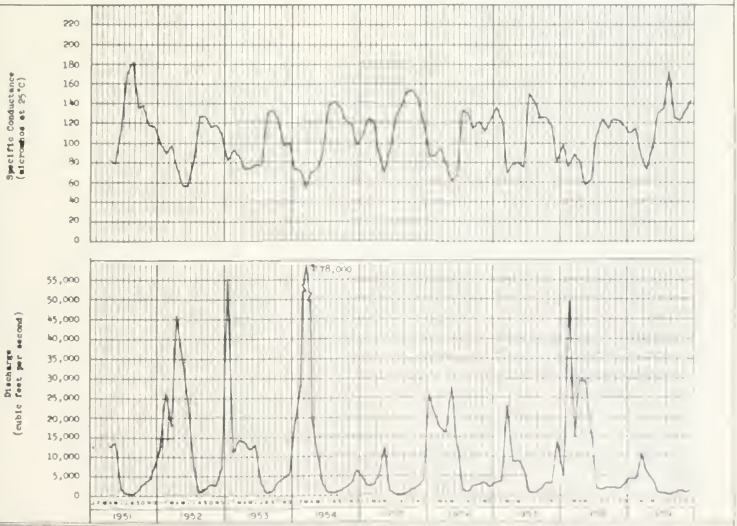
Water Quality Characteristics Chemical classification of past analyses from Station 20 show the water to be calcium-magnesium bicarbonate in character, class 1 for irrigation, soft to slightly hard, and within drinking water standards for mineral content. There is no significant change in water quality between upstream stations and the Nicolaus station, indicating tributary inflow of such streams as the Yuba and Bear Rivers has little effect on quality of Feather River water.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	72.8
Temperature in °F	[illegible]	37	71	66
Dissolved oxygen in parts per million	11.5	7.6	[illegible]	[illegible]
Percent saturation	115	81	[illegible]	[illegible]
pH	7.9	[illegible]	7.7	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	7.6	1.6	7.2	[illegible]
Sodium (Na)	6.7	[illegible]	6.8	[illegible]
Potassium (K)	2.2	[illegible]	1.8	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	92	[illegible]	92	[illegible]
Sulfate (SO_4)	7.2	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	1.6	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	0.0	[illegible]	[illegible]
Boron (B)	[illegible]	0.0	[illegible]	[illegible]
Silica (SiO_2)	19	[illegible]	16	[illegible]
Total dissolved solids in parts per million	[illegible]	36	[illegible]	68
Percent sodium	23	[illegible]	21	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	75	20	[illegible]	[illegible]
Noncarbonate	6	[illegible]	3	[illegible]
Turbidity	100	[illegible]	60	2
Coliform in most probable number per milliliter	>7,000	[illegible]	2,400	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.82	[illegible]	[illegible]	[illegible]
Solid alpha	1.22	[illegible]	[illegible]	[illegible]
Dissolved beta	11.92	[illegible]	6.66	[illegible]
Solid beta	9.38	[illegible]	9.38	[illegible]

WATER QUALITY VARIATIONS



FEATHER RIVER AT NICOLAUS (STA. 20)

FEATHER RIVER NEAR OROVILLE (STA. 19)

Sampling Point Station 19 is located in Section 2 of Township 19 North, Range 4 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank at the USGS gage 75 feet upstream from State Highway 24 bridge, 2 miles downstream from the confluence of the North and Middle Forks Feather River, and 4 miles northeast of Oroville.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Past analyses show the water to be generally calcium bicarbonate in character, class 1 for irrigation, soft, and within mineral requirements for drinking water. Only minor changes in the quality of this excellent water have been detected. Most constituents have been found in slightly lower concentrations (averaging about 90 micromhos) at Station 19 as compared to Indian Creek (Station 17d).

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	139	68	[illegible]	[illegible]
Temperature in °F	74	35	74	[illegible]
Dissolved oxygen in parts per million	14.5	6.6	[illegible]	[illegible]
Percent saturation	120	68	[illegible]	[illegible]
pH	8.3	6.8	7.9	7[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	16	6.8	13	8.[illegible]
Magnesium (Mg)	6.2	1.5	4.7	3.2
Sodium (Na)	6.6	0.9	6.6	[illegible]
Potassium (K)	3.8	0.5	[illegible].8	[illegible]7
Carbonate (CO_3)	[illegible].0	[illegible]0	[illegible]	[illegible]
Bicarbonate (HCO_3)	77	18	77	38
Sulfate (SO_4)	5.2	1[illegible]	3.[illegible]	[illegible]
Chloride (Cl)	6.0	0.0	4.[illegible]	1.[illegible]
Nitrate (NO_3)	1.8	0.0	[illegible]	[illegible]1
Fluoride (F)	0.2	[illegible]0	[illegible]	[illegible]
Boron (B)	[illegible].30	[illegible]0	0.[illegible]	[illegible]
Silica (SiO_2)	21	9.0	16	15
Total dissolved solids in parts per million	98	36	89	51
Percent sodium	25	10	21	12
Hardness as $CaCO_3$ in parts per million				
Total	56	22	56	33
Noncarbonate	3	[illegible]0	3	0.0
Turbidity	130	0.0	30	[illegible]
Coliform in most probable number per milliliter	7,000.	[illegible]	230.	[illegible].13
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible].60	[illegible].30	0.27	0.20
Solid alpha	0.25	0.00	0.10	0.09
Dissolved beta	10.81	0.00	8.06	6.61
Solid beta	10.41	0.00	1.80	0.00

WATER QUALITY VARIATIONS

FEATHER RIVER NEAR OROVILLE (STA. 19)

FEATHER RIVER BELOW SHANGHAI BEND (STA. 20a)

Sampling Point Shanghai Bend station is situated within Section 11 of Township 14 North, Range 3 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the DWR gage 1.2 miles east of the junction of U. S. Highway 40 Alternate and Barry Road, and 4.5 miles south of Yuba City.

Period of Record July 1958 through December 1959.

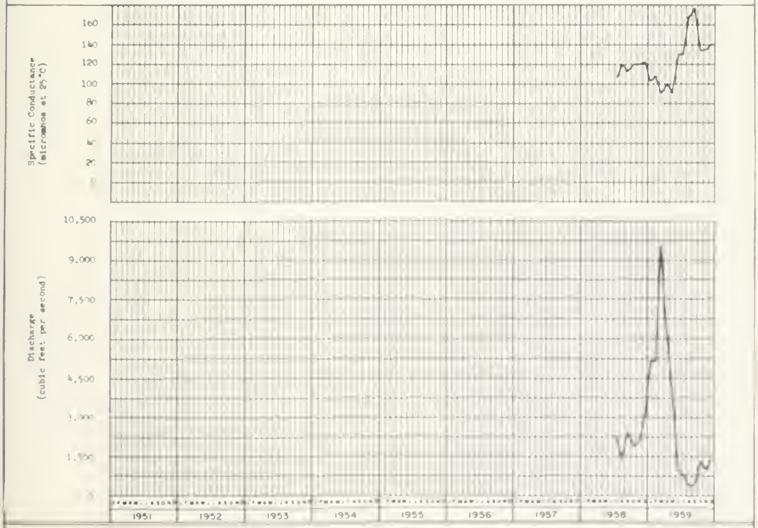
Water Quality Characteristics The water at Station 20a is calcium to calcium-magnesium bicarbonate in character, class 1 for irrigation, soft, and within drinking water standards for mineral content. Comparison of quality between Station 20a and upstream stations indicate no significant changes in mineral concentrations.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	176	88.5	176	88.5
Temperature in °F	82	44	82	44
Dissolved oxygen in parts per million	12.2	7.7	12.2	7.9
Percent saturation	108	91	109	94
pH	7.7	7.1	7.7	7.1
Mineral constituents in parts per million				
Calcium (Ca)	17	8.2	17	8.2
Magnesium (Mg)	7.7	3.2	7.7	3.2
Sodium (Na)	7.3	2.9	7.3	2.9
Potassium (K)	2.6	0.5	1.7	0.5
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	92	47	92	47
Sulfate (SO_4)	11	0.0	11	1.9
Chloride (Cl)	4.8	1.2	4.8	1.2
Nitrate (NO_3)	0.9	0.[illegible]	0.2	0.0
Fluoride (F)	0.1	0.0	0.1	0.0
Boron (B)	0.2	0.0	0.2	0.0
Silica (SiO_2)	21	11	21	11
Total dissolved solids in parts per million	111	62	111	62
Percent sodium	19	12	19	12
Hardness as $CaCO_3$ in parts per million				
Total	74	38	74	38
Noncarbonate	7	0.0	7	0.0
Turbidity	15	5	15	5
Coliform in most probable number per milliliter	2,400.	2.3	2,400.	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.61	0.17	0.61	0.17
Solid alpha	0.35	0.00	0.35	0.00
Dissolved beta	6.43	4.28	5.53	4.28
Solid beta	6.37	0.64	1.18	0.64

WATER QUALITY VARIATIONS



FEATHER RIVER BELOW SHANGHAI BEND (STA. 20a)

INDIAN CREEK NEAR CRESCENT MILLS (STA. 17d)

Sampling Point Station 17d is located in Section 25 of Township 26 North, Range 9 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the center of the creek, from the Taylorsville Road bridge (0.7 mile upstream from the USGS gage), 1.5 miles upstream from Dixie Creek and 1 mile south of Crescent Mills.

Period of Record April 1951 through December 1959.

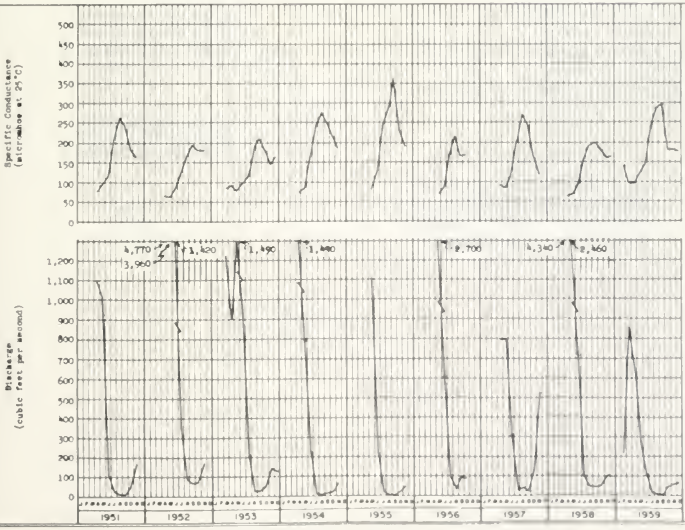
Water Quality Characteristics The water at Station 17d is calcium bicarbonate in character, ranges from soft to moderately hard, consistently meets mineral requirements for drinking water, and is class 1 for irrigation.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	363	61.8	293	77.3
Temperature in °F	78	35	74	35
Dissolved oxygen in parts per million	1[illegible].6	4.7	12.1	6.9
Percent saturation	102	48	102	74
pH	7.6	6.7	7.3	6.9
Mineral constituents in parts per million				
Calcium (Ca)	36	6.8	31	12
Magnesium (Mg)	12	2.1	9.8	4.4
Sodium (Na)	21	2.7	18	4.1
Potassium (K)	3.1	0.8	3.1	1.3
Carbonate (CO_3)	[illegible]	0.[illegible]	0.0	0.[illegible]
Bicarbonate (HCO_3)	201	36	171	50
Sulfate (SO_4)	1[illegible]	1.0	8.[illegible]	3.8
Chloride (Cl)	12	0.0	8.5	1.5
Nitrate (NO_3)	1.1	0.[illegible]	0.5	0.1
Fluoride (F)	0.2	0.0	0.1	0.1
Boron (B)	0.3	0.0	0.2	0.[illegible]
Silica (SiO_2)	32	19	27	24
Total dissolved solids in parts per million	221	43	195	66
Percent sodium	34	16	24	17
Hardness as $CaCO_3$ in parts per million				
Total	139	26	118	39
Noncarbonate	6	0.0	3	0.[illegible]
Turbidity	80	0.8	35	2
Coliform in most probable number per milliliter	>7,000.	<0.045	620	<0.045
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible].51	0.00	0.51	0.00
Solid alpha	0.83	0.00	0.17	0.00
Dissolved beta	35.41	0.00	6.49	0.00
Solid beta	28.6	0.00	2.28	0.70

WATER QUALITY VARIATIONS



INDIAN CREEK NEAR CRESCENT MILLS (STA. 17d)

Yuba-Bear Rivers Unit. The Yuba-Bear Rivers Unit is located on the western slope of the Sierra Nevada in the west-central portion of the Central Valley Region. Included within the unit are about 1,490 square miles of land ranging from rugged mountains to rolling foothills with only about 17 square miles classified as valley and mesa. Mean annual runoff of the drainage systems of the Yuba and Bear Rivers are 2,415,000 acre-feet and 356,000 acre-feet, respectively.

Developments in the unit are typical of mountainous areas and include lumbering, mining, resorts, recreational facilities, and livestock raising.

Waste discharges from these activities are relatively minor and, except for the cities of Auburn (0.6 mgd), Nevada City (0.5 mgd), and Grass Valley (1.0 mgd), do not exceed 0.5 million gallons per day.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this unit and the page on which each is discussed:

YUBA RIVER NEAR SMARTVILLE (STA. 21a)

Sampling Point Station 21a is situated in Section 20 of Township 16 North, Range 6 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at Highway 20 bridge 4 miles downstream from the confluence of Deer Creek, 5 miles downstream from Narrows Dam, and 2 miles northwest of Smartville.

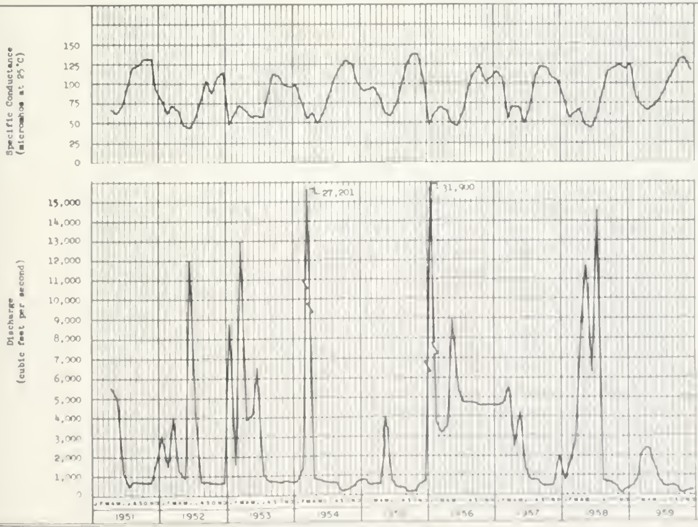
Period of Record April 1951 through December 1959.

Water Quality Characteristics Antecedent data show the water at Station 21a to be calcium bicarbonate in character, class 1 for irrigation, soft to slightly hard, and within drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES				
Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	136	43.1	[illegible]	[illegible]
Temperature in °F	77	39	76	[illegible]
Dissolved oxygen in parts per million	14.[illegible]	7.5	12.1	[illegible]
Percent saturation	124	[illegible]	109	[illegible]
pH	8.4	6.7	7.[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	18	[illegible]	[illegible]	9.[illegible]
Magnesium (Mg)	5.3	[illegible]	3.[illegible]	[illegible].9
Sodium (Na)	5.7	[illegible]	4.[illegible]	[illegible].9
Potassium (K)	1.8	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	72	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	8.2	[illegible].9	[illegible]	[illegible]
Chloride (Cl)	3.[illegible]	[illegible]	3.[illegible]	[illegible]
Nitrate (NO_3)	1.2	0.[illegible]	[illegible].2	[illegible]
Fluoride (F)	[illegible].2	[illegible]	[illegible].1	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	19	12	16	[illegible]
Total dissolved solids in parts per million	97	31	93	[illegible]
Percent sodium	[illegible]	9	17	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	63	17	63	28
Noncarbonate	44	[illegible]	9	[illegible]
Turbidity	150	[illegible]	45	[illegible]
Coliform in most probable number per milliliter	>7,000.	[illegible]	230	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible].30	[illegible]	[illegible]	[illegible]
Solid alpha	0.8	[illegible].00	[illegible].77	[illegible]
Dissolved beta	9.04	[illegible].00	3.62	[illegible]
Solid beta	10.8	[illegible].00	3.80	[illegible]

WATER QUALITY VARIATIONS



YUBA RIVER NEAR SMARTVILLE (STA. 21a)

YUBA RIVER AT MARYSVILLE (STA. 21)

Sampling Point Station 21 on Yuba River is located in Section 18 of Township 15 North, Range 4 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the center of the channel of flow, from Simpson Lane bridge, approximately 1 mile upstream from the confluence with the Feather River.

Period of Record April 1951 through December 1959.

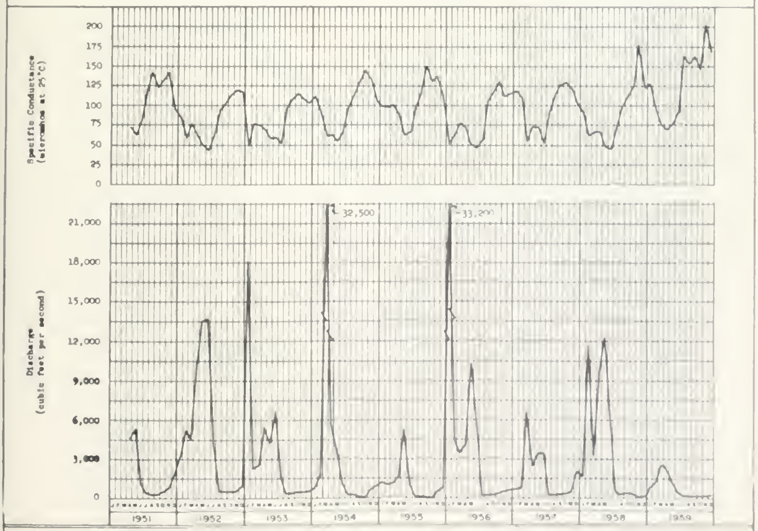
Water Quality Characteristics The water in Yuba River at Station 21 is calcium bicarbonate in character, class 1 for irrigation, soft to slightly hard, and within drinking water standards for mineral content. There is no significant difference noted in the quality of water at Station 21 and the upstream station (21a) near Smartville.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	44	204	[illegible]
Temperature in °F	83	38	83	46
Dissolved oxygen in parts per million	14.5	7.4	11.[illegible]	[illegible]
Percent saturation	132	84	108	92
pH	8.[illegible]	6.6	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	19	5.2	[illegible]	9.6
Magnesium (Mg)	6.4	1.1	6.4	2.2
Sodium (Na)	6.[illegible]	1.2	[illegible]	1.5
Potassium (K)	1.8	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	0.0	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	96	21	[illegible]	[illegible]
Sulfate (SO_4)	17	0.[illegible]	17	2.9
Chloride (Cl)	5.3	[illegible]	4.5	[illegible]
Nitrate (NO_3)	1.4	[illegible]	[illegible]	[illegible]
Fluoride (F)	0.1	[illegible]	[illegible]	[illegible]
Boron (B)	0.28	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	21	10	20	14
Total dissolved solids in parts per million	141	30.4	141	48
Percent sodium	19	9	13	11
Hardness as $CaCO_3$ in parts per million				
Total	96	18	96	31
Noncarbonate	17	0.[illegible]	17	1
Turbidity	220	0.0	17	[illegible]
Coliform in most probable number per milliliter	>7,000.	0.13	230	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.22	0.00	0.20	0.00
Solid alpha	2.15	0.00	0.72	0.22
Dissolved beta	20.68	[illegible]	11.25	0.00
Solid beta	5.15	0.00	0.76	0.00

WATER QUALITY VARIATIONS



YUBA RIVER AT MARYSVILLE (STA. 21)

BEAR RIVER NEAR WHEATLAND (STA. 78)

Sampling Point Station 78 is located in Section 3 of Township 13 North, Range 5 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, (at the USGS gage) near U. S. Highway 99E bridge 1 mile southeast of Wheatland.

Period of Record December 1951 through December 1959.

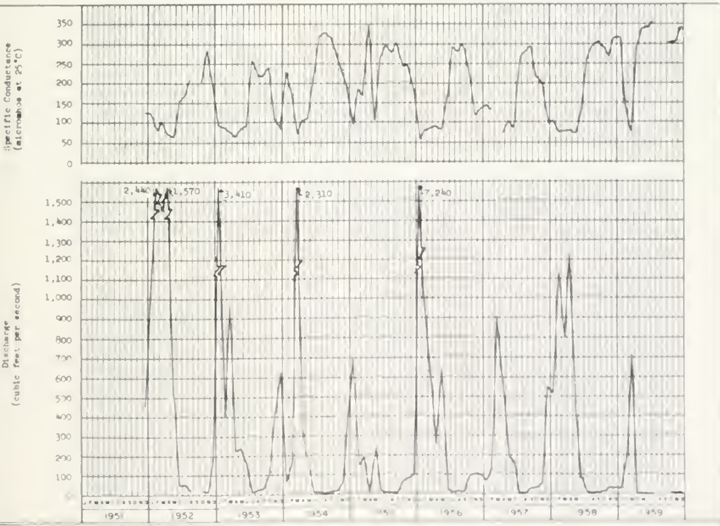
Water Quality Characteristics The water at Station 78 is calcium or calcium-magnesium bicarbonate in character, soft to moderately hard, consistently class 1 for irrigation and within drinking water standards for mineral content.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	356	57.5	356	78.8
Temperature in °F	87	37	76	45
Dissolved oxygen in parts per million	16.[illegible]	6.1	[illegible]	7.6
Percent saturation	144	75	[illegible]	83
pH	[illegible]	6.8	8.[illegible]	7.2
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	
Magnesium (Mg)	[illegible]	[illegible]	18	
Sodium (Na)	14	1.6	[illegible]	2.3
Potassium (K)	2.6	[illegible]	[illegible]	
Carbonate (CO_3)	4	[illegible]	4	[illegible]
Bicarbonate (HCO_3)	[illegible]	24	156	30
Sulfate (SO_4)	[illegible]	[illegible]	39	
Chloride (Cl)	[illegible]	[illegible]	16	4.4
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	
Fluoride (F)	[illegible]	0.0	[illegible]	
Boron (B)	[illegible]	0.0	[illegible]	[illegible]
Silica (SiO_2)	23	17	19	
Total dissolved solids in parts per million	226	[illegible]	226	50
Percent sodium	29	4	14	9
Hardness as $CaCO_3$ in parts per million				
Total	173	24	173	32
Noncarbonate	51	[illegible]	51	7
Turbidity	3,400	[illegible]	30	[illegible]
Coliform in most probable number per milliliter	7,000	[illegible]	230	0.23
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.65	[illegible]	0.00	
Solid alpha	[illegible]	[illegible]	[illegible]	
Dissolved beta	8.79	[illegible]	[illegible]	
Solid beta	8.1	[illegible]	[illegible]	

WATER QUALITY VARIATIONS



BEAR RIVER NEAR WHEATLAND (STA. 78)

BEAR RIVER NEAR MOUTH (STA. 20b)

Sampling Point The station near the mouth of the Bear River is located in Section 20 of Township 13 North, Range 4 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected at Highway 24 (Feather River Boulevard) at Rio Oso, approximately 2 miles upstream from the mouth.

Period of Record November 1958 through December 1959.

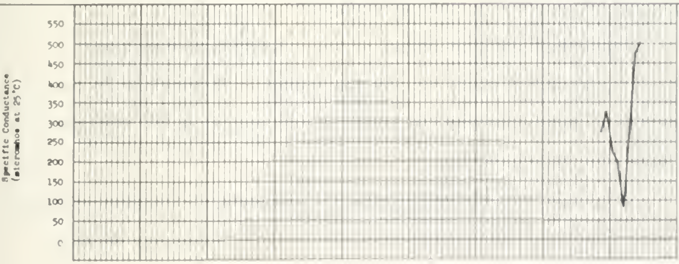
Water Quality Characteristics Water at Station 20b is generally a bicarbonate type with calcium, magnesium, and sodium alternating as predominant cations. The water ranges from soft to moderately hard and meets mineral requirements for drinking and class 1 irrigation water.

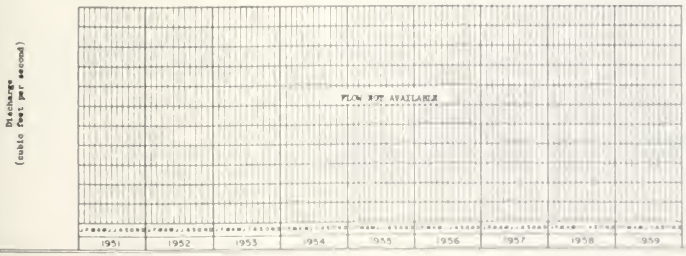
Significant Water Quality Changes Radioactivity at Station 20b during 1959 was the highest reported in the Yuba-Bear Rivers Unit, 13.7 μμc/l in May and 17.1 μμc/l in September. These values are well within safe limits.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	513	86	513	86
Temperature in °F	82	[illegible]	82	[illegible]
Dissolved oxygen in parts per million	12.1	7.1	12.1	7.9
Percent saturation	[illegible]	68	[illegible]	94
pH	7.9	7.3	7.9	7.3
Mineral constituents in parts per million				
Calcium (Ca)	35	8.8	34	8.8
Magnesium (Mg)	23	2.9	23	2.9
Sodium (Na)	42	3.2	42	3.2
Potassium (K)	8.1	0.4	8.1	0.4
Carbonate (CO_3)	0.0	[illegible]	0.0	0.0
Bicarbonate (HCO_3)	213	30	213	30
Sulfate (SO_4)	5[illegible]	11	40	11
Chloride (Cl)	66	4.2	66	4.2
Nitrate (NO_3)	1.8	0.0	1.8	0.0
Fluoride (F)	0.2	0.0	0.2	0.0
Boron (B)	0.1	0.0	0.1	0.[illegible]
Silica (SiO_2)	58	10	58	10
Total dissolved solids in parts per million	334	56	334	56
Percent sodium	37	12	37	14
Hardness as $CaCO_3$ in parts per million				
Total	180	34	180	34
Noncarbonate	51	3	41	3
Turbidity	See 1959	See 1959	3	3
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter	See 1959	See 1959		
Dissolved alpha			0.51	0.09
Solid alpha			0.43	0.10
Dissolved beta			15.76	13.05
Solid beta			0.86	0.00

WATER QUALITY VARIATIONS





BEAR RIVER NEAR MOUTH (STA. 20b)

American River Basin. The American River Basin drains the southeast corner of the Sacramento River Valley Basin of the Central Valley and covers approximately 1,940 square miles of the western slopes of the Sierra Nevada. The basin is characterized by foothill and mountainous terrain with elevations varying from 150 to 10,000 feet. Valley and mesa land comprise only 20 square miles in the basin. Mean annual runoff is estimated to be about 2,774,000 acre-feet.

The American River Basin is favored by forest, mineral, and recreational resources, which have all been developed for economic return. Although valley and mesa land comprise only about one percent of the area, considerable orchard development is found in the foothills and on the lower mountain slopes. These developments, along with numerous irrigation and municipal diversions for use in the valley, are the main water users in this watershed.

Impairment problems caused by the discharge of wastes are not of a serious nature under the present regimen. Placerville is the only source of waste discharge in excess of 0.5 mgd along the drainage basin above the valley floor.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

AMERICAN RIVER AT NIMBUS DAM (STA. 22a)

Sampling Point The sampling point for Station 22a is located in Section 16, Township 9 North, Range 7 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank just downstream from the fish screen at Nimbus Fish Hatchery, about 10 miles east of Sacramento.

Period of Record November 1958 through December 1959.

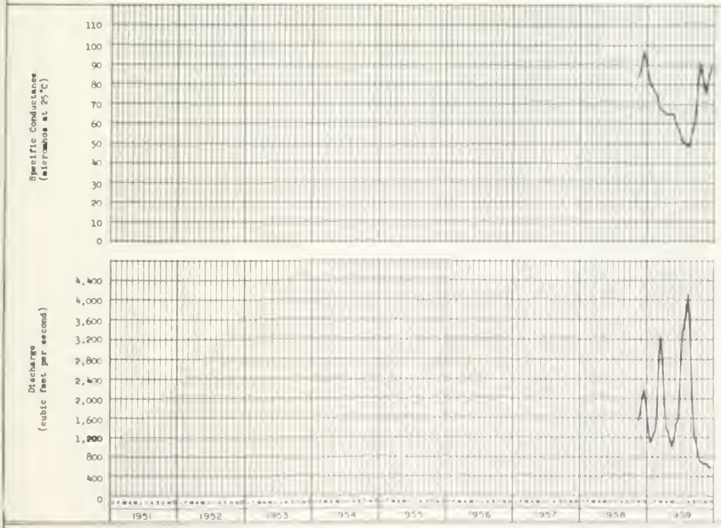
Water Quality Characteristics Past analyses show the water to be a calcium bicarbonate type of excellent mineral quality. From a mineral standpoint the water is suitable for domestic use, class 1 for irrigation, and soft with a maximum recorded hardness of 44 ppm. Water quality at Nimbus Dam station is very similar to that at Stations 22b and 22c located upstream on the Middle Fork and South Fork, respectively.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	48.2	[illegible]	48.2
Temperature in °F	71	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	12.5	[illegible]	[illegible]	[illegible]
Percent saturation	120	89	[illegible]	[illegible]
pH	7.4	6.8	7.4	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	13	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	3.5	[illegible]	2.8	[illegible]
Sodium (Na)	4.5	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	5.8	[illegible]	[illegible]	[illegible]
Chloride (Cl)	12	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	0.5	[illegible]	[illegible]	[illegible]
Fluoride (F)	0.2	[illegible]	[illegible]	[illegible]
Boron (B)	0.1	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	18	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	69	40	[illegible]	[illegible]
Percent sodium	22	14	22	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	44	19	44	19
Noncarbonate	11	0.0	11	[illegible]
Turbidity	See 1959	See 1959	1	[illegible]
Coliform in most probable number per milliliter	See 1959	See 1959	2,400	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha			[illegible]	[illegible]
Solid alpha			0.77	[illegible]
Dissolved beta			3.05	[illegible]
Solid beta			3.66	[illegible]

WATER QUALITY VARIATIONS



AMERICAN RIVER AT NIMBUS DAM (STA. 22a)

AMERICAN RIVER AT SACRAMENTO (STA. 22)

Sampling Point Station 22 on the American River is located in Section 3, Township 8 North, Range 5 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected at mid-stream from the "H" Street bridge in Sacramento.

Period of Record April 1951 through December 1959.

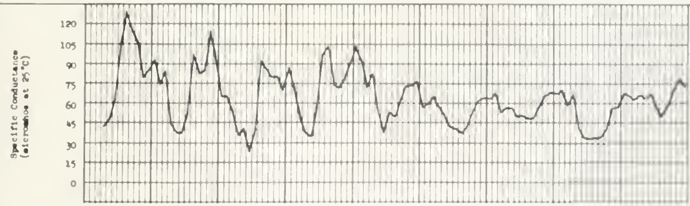
Water Quality Characteristics Antecedent data reveal the water to be generally calcium bicarbonate in character. The mineral quality is excellent, soft, and very similar to that at Station 22a (American River at Nimbus Dam). The criteria for class 1 irrigation water and mineral constituents for domestic use are consistently met by water at this station. Since 1956, when regulation of flow by Folsom Dam was commenced, the quality of water has been noticeably improved and more perennially uniform. The maximum values for concentration of individual constituents during the period of record all occurred prior to 1956.

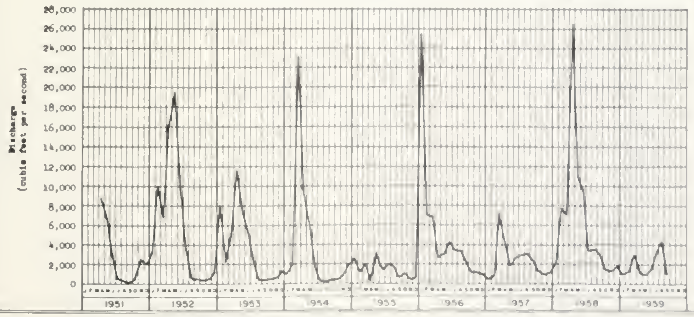
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	129	26	[illegible]	[illegible]
Temperature in °F	81	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	6.7	7.3	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	12	3.6	7.2	[illegible]
Magnesium (Mg)	5.5	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	1.1	[illegible]	[illegible]
Potassium (K)	1.3	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	56	16	33	[illegible]
Sulfate (SO_4)	4.7	[illegible]	2.9	[illegible]
Chloride (Cl)	10	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	0.9	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	15	6.9	11	[illegible]
Total dissolved solids in parts per million	91	17	55	35
Percent sodium	33	[illegible]	24	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	50	[illegible]	32	21
Noncarbonate	7	[illegible]	[illegible]	[illegible]
Turbidity	55	[illegible]	20	[illegible]
Coliform in most probable number per milliliter	>7,000.	[illegible]	7,000	0.62
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	0.69	[illegible]	[illegible]	[illegible]
Dissolved beta	15.92	[illegible]	[illegible]	[illegible]
Solid beta	7.89	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS





AMERICAN RIVER AT SACRAMENTO (STA. 22)

AMERICAN RIVER, MIDDLE FORK NEAR AUBURN (STA. 22b)

Sampling Point Station 22b is located in Section 6, Township 12 North, Range 9 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, adjacent to the USGS stream gaging station, 1.9 miles upstream from the confluence of the American River with its North Fork, 3.5 miles northeast of Auburn.

Period of Record July 1958 through December 1959.

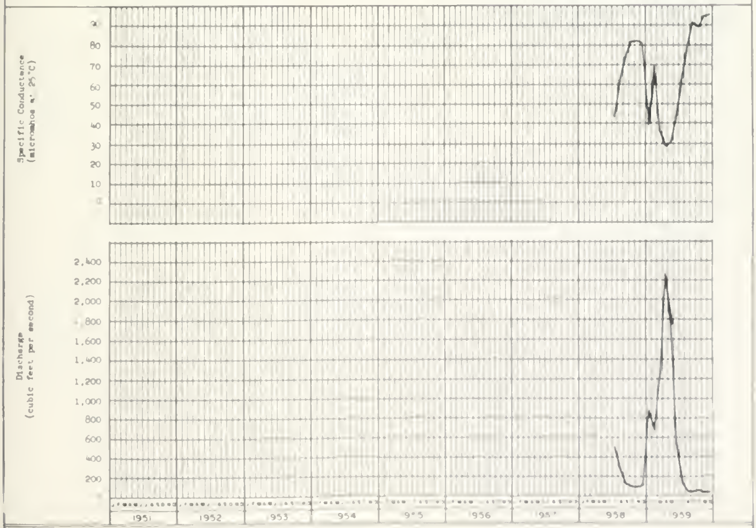
Water Quality Characteristics Past analyses show the water to be excellent in quality, calcium bicarbonate, with extremely low concentrations of dissolved solids. During the period of record total dissolved solids have not exceeded 72 ppm. The water consistently meets the requirements for a class 1 irrigation supply as well as mineral standards for domestic use. The water is soft with a maximum recorded hardness of 37 ppm.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	94.7	28.8	94.7	28.8
Temperature in °F	[illegible]	40	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	8.[illegible]	13.2	[illegible]
Percent saturation	[illegible]	86	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	9.8	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	2.3	[illegible]
Sodium (Na)	3.9	[illegible]	3.9	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	37	14	37	14
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	1.5
Chloride (Cl)	[illegible]	[illegible]	6.2	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	0.3	[illegible]
Fluoride (F)	0.2	[illegible]	0.1	[illegible]
Boron (B)	[illegible]	[illegible]	0.1	[illegible]
Silica (SiO_2)	14	[illegible]	14	8.8
Total dissolved solids in parts per million	72	[illegible]	72	25
Percent sodium	25	[illegible]	25	16
Hardness as $CaCO_3$ in parts per million				
Total	37	[illegible]	37	[illegible]
Noncarbonate	8	[illegible]	7	[illegible]
Turbidity	2	[illegible]	2	[illegible]
Coliform in most probable number per milliliter	See 1959	See 1959	230	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.61	[illegible]	0.61	[illegible]
Solid alpha	0.44	[illegible]	0.44	0.27
Dissolved beta	[illegible]	0.00	2.96	1.84
Solid beta	1.24	[illegible]	0.28	[illegible]

WATER QUALITY VARIATIONS



AMERICAN RIVER, MIDDLE FORK NEAR AUBURN (STA. 22b)

AMERICAN RIVER, SOUTH FORK NEAR LOTUS (STA. 22c)

Sampling Point The station on South Fork American River is located in Section 11, Township 11 North, Range 9 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, opposite the USGS gaging station located 0.4 mile downstream from the confluence of Greenwood Creek, and 2.4 miles northwest of Lotus.

Period of Record July 1958 through December 1959.

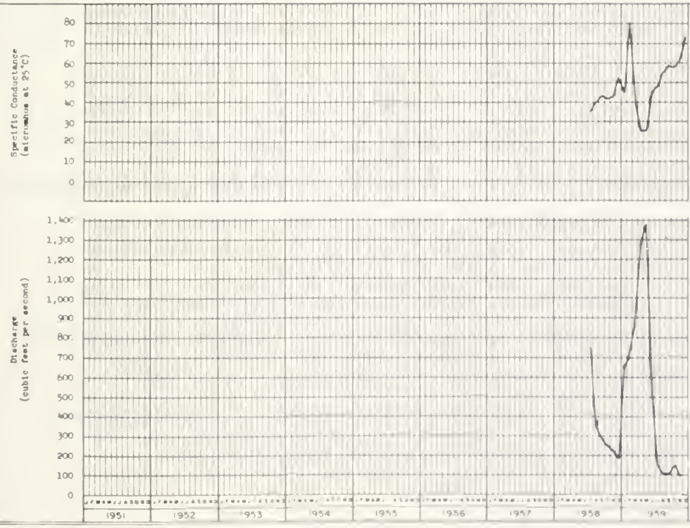
Water Quality Characteristics Analyses of the water show the predominant anion to be bicarbonate and the principal cation calcium. Calcium is not predominant, however, since sodium and magnesium together often comprise over 50 percent of the cations. Water at the station is of excellent mineral quality, class 1 for irrigation, suitable for domestic use, and soft with a maximum recorded hardness of 32 ppm.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	78	[illegible]	76	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	7.5	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	6.4	[illegible]	6.4	[illegible]
Magnesium (Mg)	3.9	[illegible]	[illegible]	[illegible]
Sodium (Na)	4.1	1.6	4.1	1.6
Potassium (K)	1.9	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	34	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	4.8	[illegible]	4.8	[illegible]
Chloride (Cl)	7.2	[illegible]	7.2	[illegible]
Nitrate (NO_3)	1.2	[illegible]	1.2	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	16	8	16	8
Total dissolved solids in parts per million	58	24	58	24
Percent sodium	29	16	29	16
Hardness as $CaCO_3$ in parts per million				
Total	32	10	32	10
Noncarbonate	4	[illegible]	4	[illegible]
Turbidity	4	1	4	1
Coliform in most probable number per milliliter	See 1959	See 1959	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.20	0.00	0.20	[illegible]
Solid alpha	0.27	0.17	0.27	0.22
Dissolved beta	3.08	1.56	2.42	1.56
Solid beta	5.62	0.00	2.71	[illegible]

WATER QUALITY VARIATIONS



AMERICAN RIVER, SOUTH FORK NEAR LOTUS (STA. 22c)

San Joaquin River Valley (5b)

The San Joaquin River Valley occupies the south-central portion of the Central Valley Region. Boundaries of the basin are defined by the ridge of the Sierra Nevada to the east, the divide between Tulare Lake Basin and the San Joaquin River to the south, the crest of the Coast Range on the west and the San Joaquin Delta and Mokelumne River Basin to the north. Average east-west width of the basin is 130 miles. About 11,792 square miles, of which 7,993 square miles are mountainous and foothills, are included in the drainage basin.

Between the alluvial fans and foothills of the Coast and Sierra Mountains lies the broad, level San Joaquin Valley. The 95 percent of the land in the San Joaquin Valley is classified as valley and mesa area. The main valley floor contains about 3,670 square miles of fertile agricultural lands with elevations varying from almost sea level in the lower end to about 300 feet at the base of the foothills.

There are no major streams draining the relatively barren foothills and mountains to the west. Major streams, all of which arise in the Sierra Nevada to the east include the Stanislaus, Fresno, Chowchilla, Merced, and Tuolumne Rivers. These rivers drain rugged, mountainous terrain with elevations often exceeding 10,000 feet.

Natural mean seasonal surface runoff in the San Joaquin River Valley is estimated to be 6,385,000 acre-feet. Eighteen sampling stations are being monitored to provide a continuing check on the quality of surface water resources in the San Joaquin River Valley. Monitored stream basins with the number of stations in parentheses are as follows:

San Joaquin River Unit (8)
Fresno River Basin (1)
Chowchilla River and Bear Creek Unit (2)
Merced River Basin (2)
Tuolumne River Basin (3)
Stanislaus River Basin (2)

San Joaquin River Unit. The San Joaquin River Unit includes the following three watersheds: (1) all land below the Sierra Nevada foothill line to the east, (2) drinage basins of minor tributary streams and the valley floor to the west, (3) the headwaters of the San Joaquin River. Valley and mesa lands in the unit include 3,855 square miles, with over 95 percent of these on the floor of the San Joaquin Valley. Mountains and foothills comprise 10,679 square miles, with over 60 percent of these lands located in the Coast Range. Mean seasonal runoff from the unit is 3,264,500 acre-feet.

The topography of the unit is highly variable. The west side terrain is hilly, generally rolling, with elevations varying from about 500 feet to slightly over 3,000 feet above sea level. The valley floor is comparatively level, marred only by stream channels or draws. In contrast, the San Joaquin River Basin in the Sierra Nevada is extremely rugged and drains areas with elevations in excess of 10,000 feet.

Economic activities in the unit are dominated by agriculture, but mining, natural gas, lumber production, livestock raising, and light industry all have a role. Agriculture, however, is by far the largest user of water resources.

Wastes of significant magnitude are discharged from several communities and industries in the unit. Controls have been established to prevent these wastes from becoming major impairment problems. However, irrigation return flows pose a threat to water quality in the San Joaquin River. Major wastes discharging into this river unit are listed in the following tabulation:

City of Fresno	30.0 mgd
City of Turlock	3.3 mgd
City of Oakdale	1.0 mgd
City of Modesto	6.7 mgd
Lee Paper Company	1.5 mgd
Castle Air Force Base	0.6 mgd
City of Chowchilla	0.5 mgd
City of Los Banos	1.5 mgd
City of Atwater	2.5 mgd
City of Merced	10.0 mgd

Seven surface water quality monitoring stations are maintained in this unit. The following tabulation presents the names of the monitoring stations and the page on which each is discussed:

SAN JOAQUIN RIVER AT FRIANT (STA. 24)

Sampling Point Station 24 is the most upstream monitoring station on the San Joaquin River. It is located in Section 7, Township 11 South, Range 21 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank (100 feet downstream from the USGS gage house), about 2 miles downstream from Friant Dam, 0.5 mile west of Friant.

Period of Record April 1951 through December 1959.

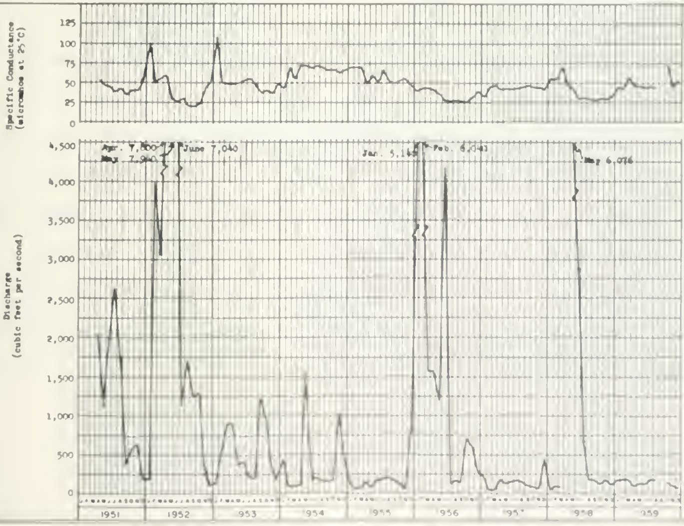
Water Quality Characteristics Water from the San Joaquin River at the Friant station generally exhibits a calcium-sodium bicarbonate characteristic. The mineral quality is excellent with a maximum recorded total dissolved solid concentration of 164 ppm. The water is soft, consistently meets the mineral criteria for drinking water and is class 1 for irrigation.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	108	21	72.9	41.4
Temperature in °F	64	35	60	46
Dissolved oxygen in parts per million	13.7	9.0	11.4	9.7
Percent saturation	124	80	124	85
pH	8.8	6.2	7.7	6.5
Mineral constituents in parts per million				
Calcium (Ca)	8.4	1.9	4.8	
Magnesium (Mg)	2.3	0.0	1.[illegible]	
Sodium (Na)	8.7	0.7	6.6	2.9
Potassium (K)	4.1	0.5	0.6	
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	44	8	32	15
Sulfate (SO_4)	5.8	0.0	3.8	
Chloride (Cl)	8.0	0.0	7.5	2.5
Nitrate (NO_3)	2.8	0.0	0.0	
Fluoride (F)	0.3	0.0	0.0	
Boron (B)	0.34	0.0	0.1	0.[illegible]
Silica (SiO_2)	15	7.4	10	
Total dissolved solids in parts per million	87	17	58	35
Percent sodium	52	25	41	29
Hardness as $CaCO_3$ in parts per million				
Total	30	6	24	12
Noncarbonate	9	0.0	4	0.0
Turbidity	70	0.0	10	2
Coliform in most probable number per milliliter	>7,000	0.045	620	0.23
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.89	0.00	[illegible].89	[illegible].51
Solid alpha	1.67	0.00	[illegible].27	0.22
Dissolved beta	15.01	0.00	1[illegible].[illegible]1	6.85
Solid beta	14.2	[illegible].00	2.77	[illegible].81

WATER QUALITY VARIATIONS



SAN JOAQUIN RIVER AT FRIANT (STA. 24)

SAN JOAQUIN RIVER NEAR MENDOTA (STA. 25)

Sampling Point Mendota station is located in Section 7, Township 13 South, Range 15 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, at the foot of the USGS gage house, 2.5 miles downstream from Mendota Dam and 4 miles north of Mendota.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Inasmuch as most of the water impounded by Mendota Dam is imported from the Sacramento-San Joaquin Delta via the Delta-Mendota Canal, water at the station is not necessarily representative of the natural quality of the San Joaquin River. Water from this station exhibits no consistent predominance of any specific cation or anion. Principal cations are sodium and calcium, while bicarbonate and chloride are the major anions. Based on mineral concentrations, the water is good to excellent, is suitable for domestic use, and ranges from soft to very hard.

Significant Water Quality Changes During August 1959, for the first time since sampling was commenced, the water at this station was class 2 for irrigation. Electrical conductivity, percent sodium, and concentrations of sodium and chloride also established new record maximums. Delta-Mendota Canal water near Mendota was a class 2 irrigation supply during August 1959, which probably accounted for the poor quality at this station at this time.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	88	42	78	47
Dissolved oxygen in parts per million	[illegible]	7.2	[illegible]	[illegible]
Percent saturation	149	84	[illegible]	[illegible]
pH	8.7	[illegible]	7.7	6.8
Mineral constituents in parts per million				
Calcium (Ca)	47	2.9	42	22
Magnesium (Mg)	27	[illegible]	27	14
Sodium (Na)	131	2.7	131	19
Potassium (K)	4.4	[illegible]	3.6	1.4
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	158	14	150	[illegible]
Sulfate (SO_4)	65	[illegible]	65	24
Chloride (Cl)	235	[illegible]	[illegible]	22
Nitrate (NO_3)	1.9	0.0	[illegible]	[illegible]
Fluoride (F)	0.4	[illegible]	0.2	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	0.1
Silica (SiO_2)	31	5.9	17	12
Total dissolved solids in parts per million	753	18	[illegible]	[illegible]
Percent sodium	65	32	65	42
Hardness as $CaCO_3$ in parts per million				
Total	214	8	214	52
Noncarbonate	101	[illegible]	101	[illegible]
Turbidity	170	[illegible]	130	2
Coliform in most probable number per milliliter	>7,000.	0.23	2,400	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.13	[illegible]	1.13	[illegible]
Solid alpha	1.67	[illegible]	0.21	[illegible]
Dissolved beta	10.41	0.00	5.18	2.32
Solid beta	14.5	0.00	0.93	[illegible]

WATER QUALITY VARIATIONS

SAN JOAQUIN RIVER NEAR MENDOTA (STA. 25)

SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE (STA. 25c)

Sampling Point Station 25c is located in Section 24 of Township 7 South, Range 9 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the center of the channel of flow, from Fremont Ford highway bridge, 2.1 miles downstream from Salt Slough, 4.5 miles west of Stevinson, and 6.7 miles upstream from the Merced River.

Period of Record July 1955 through December 1959.

Water Quality Characteristics Water at Station 25c ranges from sodium chloride to sodium-calcium chloride-sulfate in character. Chloride and sulfate concentrations frequently exceed the recommended limit for domestic use. Chlorides, boron and dissolved solids are normally in concentrations sufficient to cause the water to be class 2 or 3 for irrigation. The poor quality water is attributable to ground water accretions and drainage flows tributary to the San Joaquin River between Station 25 near Mendota Pool and Station 25c at Fremont Ford Bridge. These degrading influences cause a significant increase (on the order of 950 micromhos) in the concentration of dissolved minerals between the two stations.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	5,410	103	3,360	547
Temperature in °F	85	47	85	47
Dissolved oxygen in parts per million	12.4	8.5	12.4	8.[illegible]
Percent saturation	137	99	137	99
pH	8.5	6.6	8.3	7.0
Mineral constituents in parts per million				
Calcium (Ca)	248	8.8	124	30
Magnesium (Mg)	150	1.5	66	13
Sodium (Na)	730	8.6	499	58
Potassium (K)	8.4	1.5	8.4	3.2
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	252	37	250	127
Sulfate (SO_4)	760	4.8	376	38
Chloride (Cl)	1,330	5.8	1,050	79
Nitrate (NO_3)	28	0.0	5.4	1.1
Fluoride (F)	0.5	0.0	0.4	0.0
Boron (B)	1.6	0.0	1.6	0.2
Silica (SiO_2)	37	0.2	37	0.2
Total dissolved solids in parts per million	3,350	67	1,960	303
Percent sodium	62	34	62	48
Hardness as $CaCO_3$ in parts per million				
Total	1,240	28	660	336
Noncarbonate	1,080	0.0	455	128
Turbidity	40	20	40	20
Coliform in most probable number per milliliter	>7,000.	0.23	>7,000.	0.23
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.09		0.09	
Solid alpha	0.18		0.18	
Dissolved beta	14.21		14.21	
Solid beta	7.27		7.27	

WATER QUALITY VARIATIONS

SAN JOAQUIN RIVER AT FREMONT FORT BRIDGE (STA. 25c)

SAN JOAQUIN RIVER AT HILLS FERRY BRIDGE (STA. 25b)

Sampling Point Station 25b is located in Section 3 of Township 7 South, Range 9 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank at Hills Ferry Bridge, 300 feet downstream from the Merced River and 3.5 miles northeast of Newman.

Period of Record October 1958 through December 1959.

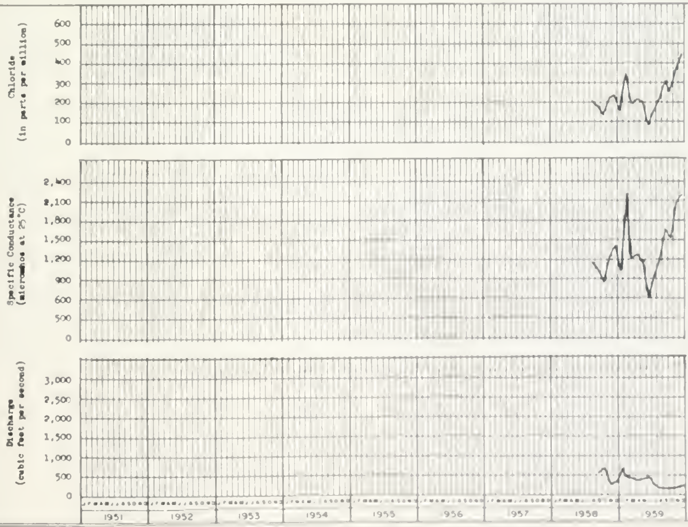
Water Quality Characteristics The water is sodium chloride-sulfate in character and very hard. Concentrations of dissolved solids, chlorides, and boron cause the water to be class 2 for irrigation. Dissolved solids and chlorides frequently exceed the recommended limits for domestic use. The quality of water at this station is not significantly different from that at the next upstream station, Fremont Ford Bridge (Station 25c).

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	2,160	[illegible]	2,160	61[illegible]
Temperature in °F	89	47	78	47
Dissolved oxygen in parts per million	18.4	7.8	12.2	7.8
Percent saturation	131	77	12[illegible]	77
pH	8.1	7.1	8.1	7.1
Mineral constituents in parts per million				
Calcium (Ca)	99	32	99	32
Magnesium (Mg)	42	14	42	14
Sodium (Na)	344	75	344	75
Potassium (K)	6.0	2.6	6.0	2.8
Carbonate (CO_3)	4	0.0	4	[illegible]
Bicarbonate (HCO_3)	269	140	269	142
Sulfate (SO_4)	359	69	359	69
Chloride (Cl)	445	82	445	82
Nitrate (NO_3)	4.9	0.[illegible]	4.9	0.[illegible]
Fluoride (F)	0.5	0.1	0.4	0.1
Boron (B)	1.3	0.2	1.3	0.2
Silica (SiO_2)	33	14	32	14
Total dissolved solids in parts per million	1,320	372	1,320	372
Percent sodium	64	53	64	53
Hardness as $CaCO_3$ in parts per million				
Total	421	139	421	139
Noncarbonate	224	23	224	23
Turbidity	35	6	35	6
Coliform in most probable number per milliliter	7,000.	0.23	7,000.	0.23
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



SAN JOAQUIN RIVER AT HILLS FERRY BRIDGE (STA. 25b)

SAN JOAQUIN RIVER NEAR GRAYSON (STA. 26)

Sampling Point The location of the Grayson monitoring station is within Section 24, Township 4 South, Range 7 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, adjacent to Laird Slough Bridge, and 2 miles northeast of Westley.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Water at Station 26 varies widely both in quality and character. The water is predominantly a sodium chloride type, however, calcium often constitutes a significant portion of the cations, and bicarbonate at times is the predominant anion. The water ranges from class 1 to class 2 for irrigation; the concentration of chloride at times exceeds the recommended limits for domestic use; total hardness ranges from soft to very hard. Conductivity ranges from 500 to over 1,000 micromhos higher at this station than at the Mendota station, about 65 miles upstream. Irrigation returns, effluent ground water, and waste discharges have caused mineral concentrations to increase along this reach of the river.

Significant Water Quality Changes In 1959 concentrations of one or more minerals exceeded class 1 irrigation limits in samples collected at the Grayson station. The extremely poor quality at the station was attributed to the low flows in San Joaquin River which afforded only minor dilution to poor quality drainage waters.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	1,660	91	1,660	1,030
Temperature in °F	81	45	80	49
Dissolved oxygen in parts per million	14.5	5.9	12.6	7.2
Percent saturation	171	63	145	63
pH	8.6	6.8	8.5	7.9
Mineral constituents in parts per million				
Calcium (Ca)	72	7.2	72	62
Magnesium (Mg)	47	2.1	47	26
Sodium (Na)	220	7.6	220	134
Potassium (K)	5.2	1.1	5.2	4.8
Carbonate (CO_3)	0.0	0.0	0.0	[illegible]
Bicarbonate (HCO_3)	248	35	248	178
Sulfate (SO_4)	164	5.8	164	159
Chloride (Cl)	280	6.0	280	160
Nitrate (NO_3)	4.4	0.8	1.6	1.0
Fluoride (F)	0.4	0.0	0.2	0.1
Boron (B)	0.8	0.0	0.8	0.4
Silica (SiO_2)	27	11	[illegible]	22
Total dissolved solids in parts per million	986	56	986	612
Percent sodium	61	36	61	52
Hardness as $CaCO_3$ in parts per million				
Total	348	25	348	226
Noncarbonate	153	0	153	8
Turbidity	300	0.0	60	0.0
Coliform in most probable number per milliliter	>7,000.	2.3	2,400	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	4.07	0.00	0.18	0.00
Solid alpha	1.56	0.00	0.18	0.00
Dissolved beta	15.5	0.00	6.86	4.25
Solid beta	[illegible]	0.00	5.49	3.58

WATER QUALITY VARIATIONS

SAN JOAQUIN RIVER NEAR GRAYSON (STA. 26)

SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE (STA. 26a)

Sampling Point Station 26a is located in Section 29, Township 3 South, Range 7 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, 50 feet upstream from El Solyo Ranch irrigation intake and about 300 feet from Maze Road Bridge. Samples from the station were collected by personnel working for the City of San Francisco, an interested and cooperating agency in this program.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Water at Maze Road Bridge is normally sodium chloride in type, ranging from soft to very hard, and generally meeting mineral standards for domestic use. Although water at the station ranges from class 1 to class 2 for irrigation, the mineral quality is considerably better (averaging about 350 micromhos) than at Station 26 near Grayson, located about 11 miles upstream. The improvement in quality reflects the influence of tributary Tuolumne River water, which enters the San Joaquin River between these two stations.

Significant Water Quality Changes During 1959, water samples from the station contained mineral concentrations which exceeded the maximum of record. The water was class 2 for irrigation during May through October. Chloride concentrations in July and September exceeded 250 ppm, the recommended limit for drinking water. Impairment of quality at Station 26a was attributed to low flow conditions not affording enough dilution for poor quality drainage and effluent ground waters entering the river.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	1,300	97	1,300	607
Temperature in °F	81	46	81	49
Dissolved oxygen in parts per million	14.1	6.3	13.9	6.4
Percent saturation	175	58	173	58
pH	8.5	6.7	8.5	7.5
Mineral constituents in parts per million				
Calcium (Ca)	67	8.3	67	48
Magnesium (Mg)	28	2.7	28	18
Sodium (Na)	157	7.4	157	65
Potassium (K)	7.4	1.2	7.4	6.6
Carbonate (CO_3)	19	0.0	19	0.0
Bicarbonate (HCO_3)	198	31	198	95
Sulfate (SO_4)	82	5.3	82	48
Chloride (Cl)	295	5	295	104
Nitrate (NO_3)	5.1	0.0	3.6	1.1
Fluoride (F)	0.6	0.0	0.2	0.1
Boron (B)	0.73	0.0	0.4	0.1
Silica (SiO_2)	34	9.3	34	29
Total dissolved solids in parts per million	720	54	720	338
Percent sodium	59	38	57	52
Hardness as $CaCO_3$ in parts per million				
Total	273	25	273	132
Noncarbonate	118	1	111	44
Turbidity	300	0.0	40	[illegible]
Coliform in most probable number per milliliter	>7,000	1.3	7,000	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	2.88	0.00	0.51	0.27
Solid alpha	1.56	0.00	0.64	0.27
Dissolved beta	12.7	0.00	5.75	0.00
Solid beta	20.6	0.00	6.[illegible]	4.69

WATER QUALITY VARIATIONS

SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE (STA. 26a)

SAN JOAQUIN RIVER NEAR VERNALIS (STA. 27)

Sampling Point Station 27 is located in Section 13 of Township 3 South, Range 6 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the center of flow, from Durham Ferry highway bridge, 3 miles downstream from the Stanislaus River, 3.4 miles northeast of Vernalis.

Period of Record April 1951 through December 1959.

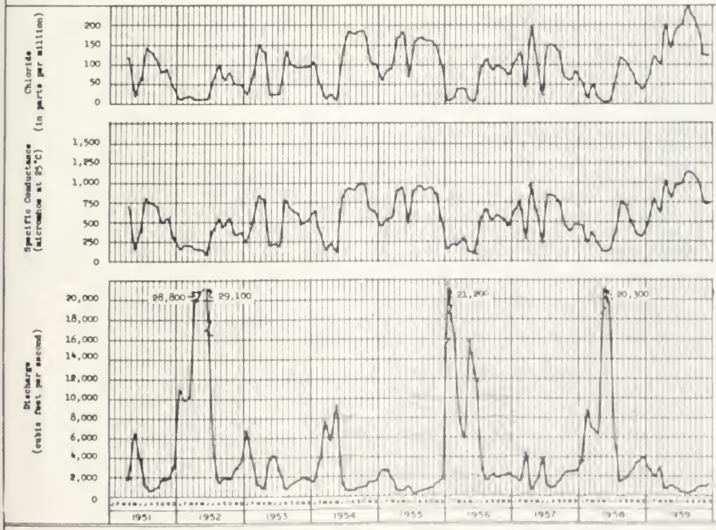
Water Quality Characteristics The water at Station 27 is generally sodium chloride to sodium chloride-bicarbonate in character and moderately hard to very hard. Chlorides and dissolved solids occasionally exceed the recommended maximum for domestic use and frequently cause the water to be class 2 for irrigation. A decrease (about 150 micromhos) in the concentration of most mineral constituents is noted between Station 26a at Maze Road Bridge and Station 27 at Vernalis. The improvement in quality between these two stations is attributable to the dilution caused by the excellent quality tributary inflow of the Stanislaus River.

Significant Water Quality Changes Maximum values for the period of record for conductivity, calcium, sodium, potassium, bicarbonate, dissolved solids, percent sodium, and hardness were reported during the latter part of 1959. The maximums were not, however, sufficient to seriously impair the quality of the water at this point.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	1,290	99	1,290	357
Temperature in °F	82	45	82	[illegible]
Dissolved oxygen in parts per million	13.4	[illegible]	12.1	7.8
Percent saturation	166	64	125	82
pH	8.5	6.5	8.2	6.[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	65	8.4	65	20
Magnesium (Mg)	43	1.9	31	9.2
Sodium (Na)	158	8.0	1[illegible]8	39
Potassium (K)	8.6	0.9	8.6	2.8
Carbonate (CO_3)	7	0.0	0.0	[illegible]
Bicarbonate (HCO_3)	204	32	204	83
Sulfate (SO_4)	113	2.9	113	30
Chloride (Cl)	275	8	275	46
Nitrate (NO_3)	5.5	0.4	5.5	1.[illegible]
Fluoride (F)	0.4	0.0	0.4	0.1
Boron (B)	0.56	0.0	[illegible]	0.1
Silica (SiO_2)	41	10	46	24
Total dissolved solids in parts per million	748	52	748	270
Percent sodium	58	32	58	47
Hardness as $CaCO_3$ in parts per million				
Total	286	26	286	88
Noncarbonate	132	0	132	20
Turbidity	85	0.0	60	0.0
Coliform in most probable number per milliliter	24,000.	0.62	7,000	0.62
Radioactivity in micro-micro curies per liter				
Dissolved alpha	2.02	0.00	0.51	0.26
Solid alpha	2.10	0.00	0.53	0.17
Dissolved beta	13.02	0.00	8.44	0.00
Solid beta	14.88	0.00	4.45	3.61

WATER QUALITY VARIATIONS



SAN JOAQUIN RIVER NEAR VERNALIS (STA. 27)

SALT SLOUGH AT SAN LUIS RANCH (STA. 92a)

Sampling Point Station 92a is located in Section 7 of Township 9 South, Range 11 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the center of the channel of flow, from a bridge about 8 miles north of Los Banos, at San Luis Ranch.

Period of Record November 1958 through December 1959.

Water Quality Characteristics Water of the slough is generally sodium chloride in character, very hard, and class 2 for irrigation. Dissolved solids, chlorides, and sulfates usually exceed the recommended limits for domestic use. During winter months, storm and surface drainage and ground water accretions supply the preponderance of flow and cause high electrical conductivity on the order of 2,000 micromhos. However, during the irrigation season, return waters (averaging about 1,000 micromhos) contribute significant quantities of flow to the slough and frequently dilute the concentrations of most dissolved minerals to within the limits recommended for domestic use.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	2,370	942	2,370	942
Temperature in °F	78	48	78	48
Dissolved oxygen in parts per million	8.7	3.2	8.7	3.2
Percent saturation	88	30	88	30
pH	7.4	6.4	7.4	6.4
Mineral constituents in parts per million				
Calcium (Ca)	95	49	95	49
Magnesium (Mg)	55	23	55	23
Sodium (Na)	338	117	338	117
Potassium (K)	7.8	3.2	7.8	3.2
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	244	160	244	160
Sulfate (SO_4)	461	93	461	93
Chloride (Cl)	425	162	425	162
Nitrate (NO_3)	8.[illegible]	1.5	8.0	1.5
Fluoride (F)	0.4	0.1	0.4	0.1
Boron (B)	2.2	0.3	2.2	0.3
Silica (SiO_2)	27	10	27	10
Total dissolved solids in parts per million	1,460	560	1,460	560
Percent sodium	62	53	62	53
Hardness as $CaCO_3$ in parts per million				
Total	462	218	462	218
Noncarbonate	268	84	268	84
Turbidity	50	8	50	8
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.40	0.09	0.40	0.09
Solid alpha	0.27	0.27	0.27	0.27
Dissolved beta	4.90	3.37	4.90	3.37
Solid beta	2.14	0.78	2.14	0.78

WATER QUALITY VARIATIONS

SALT SLOUGH AT SAN LUIS RANCH (STA. 92a)

Fresno River Basin. The Fresno River Basin drains a portion of the lower western slope of the Sierra Nevada in Madera County. The Fresno River rises at an elevation of about 7,000 feet and flows westerly into the San Joaquin Valley floor. Natural runoff varies from little or no flow in later summer, to flash floods during the rainy season, averaging about 103,000 acre-feet annually.

In the river basin, above the valley floor, only 4 square miles out of 270 are classified as valley or mesa lands. Development is limited to livestock raising and recreation.

There are no significant waste discharges entering the basin. A surface water sampling station is maintained on the Fresno River near Daulton to monitor quality of runoff.

FRESNO RIVER NEAR DAULTON (STA. 113)

Sampling Point The Daulton station is located in Section 3, Township 10 South, Range 19 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected at mid-stream from Hensley Bridge, about 1.6 miles upstream from USGS gaging station, and about 5.3 miles southeast of Daulton.

Period of Record January 1958 through December 1959.

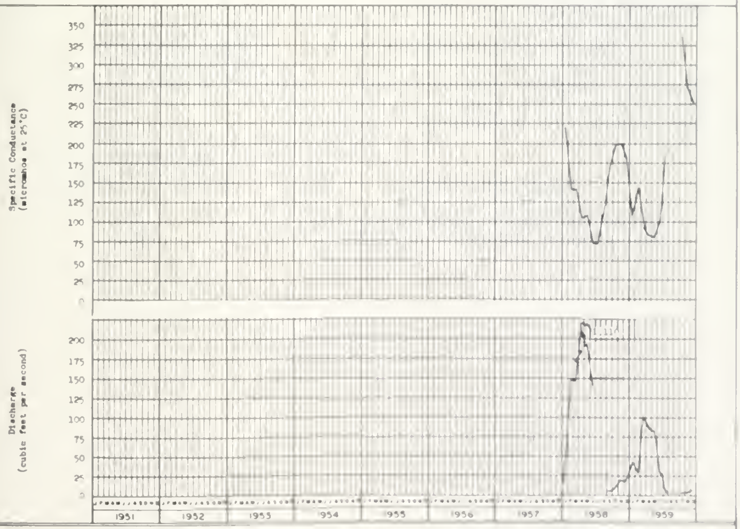
Water Quality Characteristics Past analyses show Fresno River water to be calcium-sodium bicarbonate-chloride in character, soft to slightly hard, class 1 for irrigation, and that the water meets the criteria for domestic use.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	72.[illegible]	3[illegible]	78.9
Temperature in °F	78	[illegible]	78	[illegible]
Dissolved oxygen in parts per million	[illegible]	7.3	[illegible]	8
Percent saturation	[illegible]	73	99	91
pH	7.8	6.6	7.8	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	15	[illegible]	[illegible]	6.4
Magnesium (Mg)	3.5	[illegible]	2.[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	2.[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	28	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	4.4	70	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	0.3	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	231	51	231	[illegible]
Percent sodium	60	29	[illegible]	29
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	18	73	23
Noncarbonate	21	[illegible]	21	[illegible]
Turbidity	[illegible]	[illegible].8	7	[illegible]
Coliform in most probable number per milliliter	>7,000	[illegible].23	2,[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible].70	[illegible]	[illegible]	
Solid alpha	[illegible].55	[illegible]	[illegible]	
Dissolved beta	9.49	[illegible].20	[illegible]	
Solid beta	[illegible].88	[illegible].16	8.[illegible]	

WATER QUALITY VARIATIONS



FRESNO RIVER NEAR DAULTON (STA. 113)

Chowchilla River and Bear Creek Unit. The Chowchilla River drains about 238 square miles of the lower slopes of the Sierra Nevada in Madera and Mariposa Counties. Bear Creek drains the foothills in western Merced and eastern Mariposa County. The Chowchilla River Basin has a mean annual runoff of about 91,300 acre-feet. Information is not available on the mean annual runoff from Bear Creek Basin.

Topography in these two basins, above the valley floor, is mostly rolling foothills. The Chowchilla River headwaters are at about 6,000 feet in a fairly well forested terrain. Ground covering changes with elevation from forest to range grass and a scattering of scrub trees and brush in the foothills. Livestock raising is the only significant use made of the foothill areas in the unit. Only minor quantities of waste enter these streams and there is no discernible water quality impairment problems in the unit.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this unit and the page on which each is discussed:

Monitoring Station	Page Number of Station Discussion
Chowchilla River at Buchanan Dam Site	286
Bear Creek at Merced	288

CHOWCHILLA RIVER AT BUCHANAN DAM SITE (STA. 114)

Sampling Point Station 114 is located in Section 22, Township 8 South, Range 18 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, at a USGS gage located about 4.3 miles west of Raymond.

Period of Record January 1958 through December 1959.

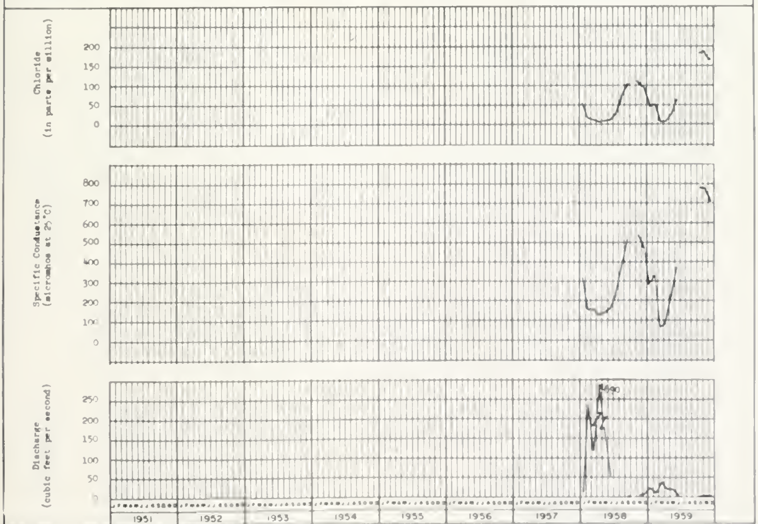
Water Quality Characteristics Water in the stream is a mixed calcium-sodium bicarbonate-chloride type from January through June. The stream is usually dry through the summer. When flow starts again in October, the water is a mixed sodium-calcium chloride type. The water is normally class 1 for irrigation and occasionally class 2 due to high chloride concentrations. Water in Chowchilla River ranges from soft to very hard, limiting it for domestic and industrial uses.

Significant Water Quality Changes During November 1959, chlorides reached 190 ppm, the maximum value of record. Runoff from the basin was extremely small during the late months of 1959. The lack of dilution water afforded by the resultant low flow probably accounted for the high concentration of chlorides.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	783	68.2	783	68.2
Temperature in °F	82	49	76	51
Dissolved oxygen in parts per million	11.6	7.7	11.2	8.9
Percent saturation	118	86	105	94
pH	8.4	7.1	7.9	7.1
Mineral constituents in parts per million				
Calcium (Ca)	28	6.4	28	6.4
Magnesium (Mg)	11	1.5	5.5	1.5
Sodium (Na)	81	5.2	81	5.2
Potassium (K)	3.9	0.8	2.4	0.8
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	118	27	118	27
Sulfate (SO_4)	12	1.0	5.8	1.0
Chloride (Cl)	190	6.0	190	6.5
Nitrate (NO_3)	0.9	0.0	0.4	0.0
Fluoride (F)	0.1	0.0	0.1	0.0
Boron (B)	0.21	0.0	0.2	0.0
Silica (SiO_2)	41	12	28	12
Total dissolved solids in parts per million	481	50	481	50
Percent sodium	47	30	47	32
Hardness as $CaCO_3$ in parts per million				
Total	202	22	202	22
Noncarbonate	104	0.0	104	0.0
Turbidity	90	0.0	3	0.0
Coliform in most probable number per milliliter	>7,000.	0.23	620	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.40	0.17	0.40	
Solid alpha	0.64	0.17	0.64	
Dissolved beta	5.19	3.05	2.90	
Solid beta	11.55	1.00	11.55	

WATER QUALITY VARIATIONS



CHOWCHILLA RIVER AT BUCHANAN DAM SITE (STA. 114)

BEAR CREEK AT MERCED (STA. 111a)

Sampling Point The station is located in Section 24, Township 7 South, Range 13 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from State Highway 99 bridge at the north end of Merced.

Period of Record October 1958 through December 1959.

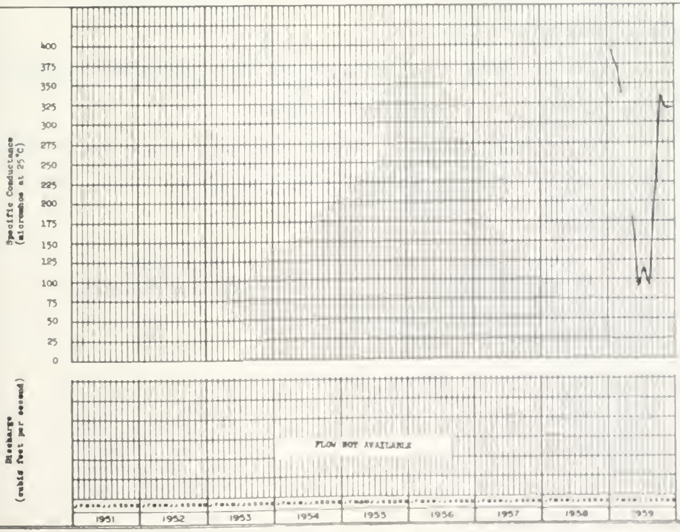
Water Quality Characteristics The water is a mixed calcium-magnesium bicarbonate type, low in concentrations of dissolved solids, and of excellent mineral quality for most beneficial uses. However, hardness ranges from soft to moderately hard, limiting it for domestic and industrial uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	See 1959	See 1959	[illegible]	[illegible]
Temperature in °F			[illegible]	[illegible]
Dissolved oxygen in parts per million			[illegible]	[illegible]
Percent saturation			[illegible]	80
pH			[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)			34	[illegible]
Magnesium (Mg)			20	2.7
Sodium (Na)			18	4.2
Potassium (K)			2.6	[illegible]
Carbonate (CO_3)			[illegible]	[illegible]
Bicarbonate (HCO_3)			[illegible]	[illegible]
Sulfate (SO_4)			[illegible]	4.8
Chloride (Cl)			18	2.6
Nitrate (NO_3)			2.2	[illegible]
Fluoride (F)			[illegible]	[illegible]
Boron (B)			[illegible]	[illegible]
Silica (SiO_2)			[illegible]	16
Total dissolved solids in parts per million			237	62
Percent sodium			23	16
Hardness as $CaCO_3$ in parts per million				
Total			165	[illegible]
Noncarbonate			11	[illegible]
Turbidity			7	1
Coliform in most probable number per milliliter (Not Measured)				
Radioactivity in micro-micro curies per liter				
Dissolved alpha			[illegible]	[illegible]
Solid alpha			[illegible]	[illegible]
Dissolved beta			12.36	3.73
Solid beta			6.29	[illegible]

WATER QUALITY VARIATIONS



BEAR CREEK AT MERCED (STA. 111o)

Merced River Basin. Merced River drains a watershed area of about 1,035 square miles in Mariposa and Merced Counties. The river originates at an elevation of 11,000 feet in the Sierra Nevada and drops to about 400 feet as it flows out of the foothills into San Joaquin Valley. From its headwater the river flows almost due westward 135 miles to its mouth on the San Joaquin River. Mean annual runoff from the basin is estimated to be 1,027,000 acre-feet. Snowmelt sustains flow in the Merced River throughout most of the summer.

Terrain in the basin is very rugged at the headwaters, and steep canyon walls comprise a large portion of the watershed along the river. Yosemite Valley is the major attraction in this basin and development is primarily based on the tourist trade attracted by the scenic and geologic wonders of the valley. Lumbering, mining, livestock raising, and recreational services comprise the balance of significant economic pursuits in the basin.

Waste discharges entering the Merced River system are insignificant in volume and do not create impairment problems.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

MERCED RIVER BELOW EXCHEQUER DAM (STA. 32a)

Sampling Point Exchequer Dam station is located in Section 14, Township 4 South, Range 15 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the USGS gage house, 0.5 mile downstream from Exchequer Dam and 5 miles northeast of Merced Falls.

Period of Record April 1951 through December 1959.

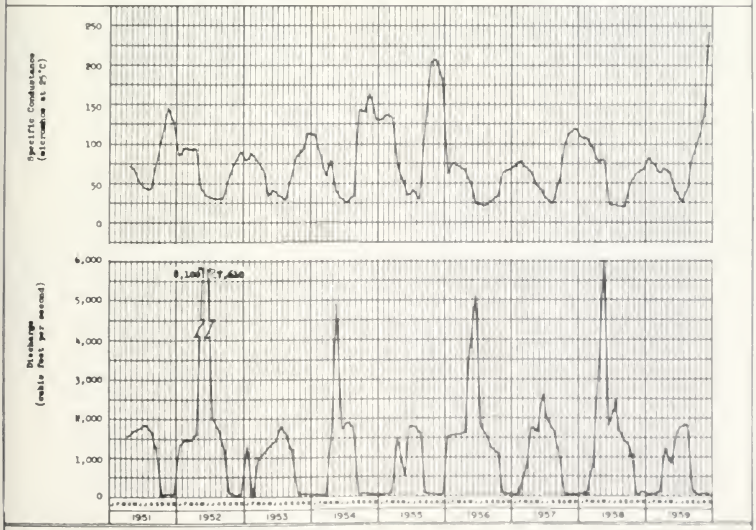
Water Quality Characteristics The water is calcium bicarbonate in character, soft to slightly hard, and of excellent mineral quality for nearly all beneficial uses. The quality of water at Station 32a reflects the amount of runoff in the stream; in a low water year, conductivity ranges from 25 to 250 micromhos, and in a wet water year, conductivity ranges from 20 to 110 micromhos.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	242	[illegible]	[illegible]	[illegible]
Temperature in °F	77	44	--	[illegible]
Dissolved oxygen in parts per million	[illegible]	3.8	[illegible]	[illegible]
Percent saturation	122	[illegible]	104	[illegible]
pH	[illegible]	[illegible]	[illegible]	6.8
Mineral constituents in parts per million				
Calcium (Ca)	29	2.4	[illegible]	7.6
Magnesium (Mg)	5.5	[illegible]	[illegible]	1.5
Sodium (Na)	21	[illegible]	21	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	127	9	127	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	2.9
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	2.9	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	0.73	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	16	3.7	16	[illegible]
Total dissolved solids in parts per million	158	13	158	[illegible]
Percent sodium	37	[illegible]	37	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	91	8	79	9
Noncarbonate	12	[illegible]	6	[illegible]
Turbidity	400	[illegible]	35	[illegible]
Coliform in most probable number per milliliter	>7,000	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.54	0.00	[illegible]	[illegible]
Solid alpha	1.61	[illegible]	[illegible]	[illegible]
Dissolved beta	13.3	[illegible]	4.04	[illegible]
Solid beta	8.1	[illegible]	3.21	[illegible]

WATER QUALITY VARIATIONS



MERCED RIVER BELOW EXCHEQUER DAM (STA. 32a)

MERCED RIVER NEAR STEVINSON (STA. 32)

Sampling Point Station 32 is located in Section 36, Township 6 South, Range 9 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank (100 feet upstream from a USGS gage), about 6 miles northwest of Stevinson.

Period of Record April 1951 through December 1959.

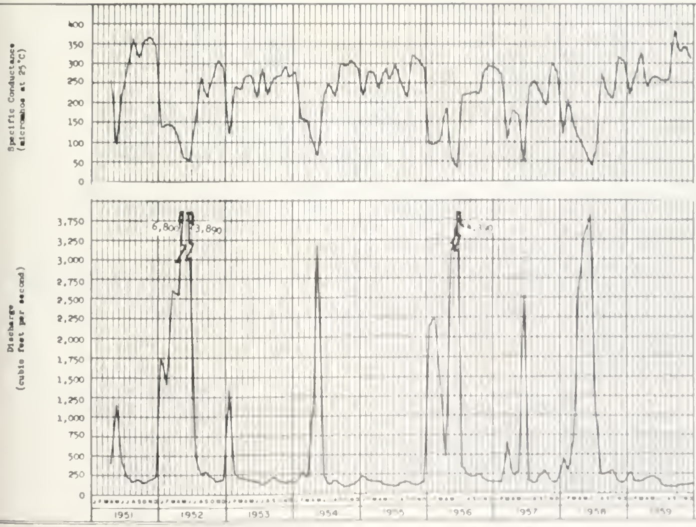
Water Quality Characteristics Water in the river near Stevinson is a mixed calcium-magnesium bicarbonate type, slightly hard and of excellent mineral quality for nearly all beneficial uses. Comparison of mineral quality of water at Station 32 with that at Merced River below Exchequer Dam (Station 32a) reveal a proportionately large increase (about 200 micromhos) in dissolved solids. However, quality of water is still excellent at both stations.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	385	33.6	385	222
Temperature in °F	83	45	81	53
Dissolved oxygen in parts per million	12.0	7.0	11.1	8.[illegible]
Percent saturation	128	78	104	84
pH	8.1	6.6	[illegible]	6.6
Mineral constituents in parts per million				
Calcium (Ca)	28	4.8	27	19
Magnesium (Mg)	11	0.3	8.4	8.1
Sodium (Na)	45	2.0	43	19
Potassium (K)	3.1	0.5	2.8	2.3
Carbonate (CO_3)	14	0.[illegible]	14	[illegible]
Bicarbonate (HCO_3)	162	18	162	89
Sulfate (SO_4)	22	3.3	17	11
Chloride (Cl)	52	0.0	38	9.0
Nitrate (NO_3)	2.8	0.0	2.8	2.7
Fluoride (F)	0.4	0.0	0.1	0.0
Boron (B)	0.31	0.0	0.2	0.0
Silica (SiO_2)	49	7.5	35	28
Total dissolved solids in parts per million	248	21.6	248	143
Percent sodium	55	14	53	37
Hardness as $CaCO_3$ in parts per million				
Total	115	13	108	66
Noncarbonate	18	0.0	0.0	0.[illegible]
Turbidity	60	0.0	35	0.[illegible]
Coliform in most probable number per milliliter	7,000.	0.[illegible]46	7,000.	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.55	0.00	0.41	0.27
Solid alpha	0.76	[illegible]	0.53	0.26
Dissolved beta	13.50	0.00	3.79	2.33
Solid beta	19.74	0.00	[illegible]	[illegible]

WATER QUALITY VARIATIONS



MERCED RIVER NEAR STEVINSON (STA. 32)

Tuolumne River Basin. Tuolumne River Basin contains approximately 1,540 square miles on the western slopes of the Sierra Nevada in the east-central portion of the Central Valley Region. Headwaters derive from glacial lakes high in the mountains, from where the stream flows southwesterly for 150 miles to its junction with the San Joaquin River. Average annual discharge of Tuolumne River Basin is estimated to be 1,900,000 acre-feet.

Above the San Joaquin Valley floor the terrain of the basin is classified as mountainous-foothill area. The upper portion drains a few meadows and plateaus, but the river soon drops into a steep canyon and flows through a gorge for a distance of about 80 miles. Elevation varies from 300 feet at the foothill line to over 13,000 feet at the crest of the Sierra Nevada.

Economic developments in the basin are typical of mountainous areas and include resort areas, lumbering, mining, livestock raising, and recreational facilities.

Numerous wastes from individual domestic, lumbermill, and resort developments, discharge into the Tuolumne watershed. These waste discharges are minor in quantity and have not caused significant impairment problems.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

TUOLUMNE RIVER BELOW DON PEDRO DAM (STA. 31a)

Sampling Point Don Pedro Dam station is located in Section 3, Township 3 South, Range 14 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, about one-quarter mile downstream from the dam and approximately 5 miles upstream from La Grange.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Analyses show the water to be calcium bicarbonate in character, excellent in mineral quality, soft, and suitable for all beneficial uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	154	[illegible]	[illegible]	[illegible]
Temperature in °F	71	44	67	48
Dissolved oxygen in parts per million	11.6	[illegible]	9.9	[illegible]
Percent saturation	133	60	84	72
pH	8.8	6.0	7.1	6.7
Mineral constituents in parts per million				
Calcium (Ca)	7.1	[illegible]	[illegible]	3.6
Magnesium (Mg)	2.7	[illegible]	1.5	[illegible]
Sodium (Na)	5.1	[illegible]	2.7	[illegible]
Potassium (K)	1.0	0.3	[illegible]	
Carbonate (CO_3)	0.0	0.0	0.0	[illegible]
Bicarbonate (HCO_3)	60	8	28	12
Sulfate (SO_4)	2.9	0.0	2.9	
Chloride (Cl)	10	0.0	2.5	0.5
Nitrate (NO_3)	0.8	[illegible]	0.2	
Fluoride (F)	0.2	0.0	0.0	
Boron (B)	0.17	0.0	0.1	[illegible]
Silica (SiO_2)	22	4.0	[illegible]	
Total dissolved solids in parts per million	117	13	46	19
Percent sodium	44	13	43	17
Hardness as $CaCO_3$ in parts per million				
Total	38	4	28	8
Noncarbonate	7	0.0	7	0.0
Turbidity	55	[illegible]	30	0.0
Coliform in most probable number per milliliter	>7,000	0.045	230.	0.21
Radioactivity in micro-micro curies per liter				
Dissolved alpha	2.25	0.00	0.51	[illegible]
Solid alpha	1.07	0.00	1.07	[illegible]
Dissolved beta	9.57	0.92	9.57	6.05
Solid beta	[illegible]	0.00	4.82	0.00

WATER QUALITY VARIATIONS

TUOLUMNE RIVER BELOW DON PEDRO DAM (STA. 31a)

TUOLUMNE RIVER AT HICKMAN-WATERFORD BRIDGE (STA. 30)

Sampling Point The station is located within Section 34, Township 3 South, Range 11 East, Mt. Diablo Base and Meridian. Monthly grab samples were taken from Hickman-Waterford Bridge about one-half mile south of Waterford.

Period of Record April 1951 through December 1959.

Water Quality Characteristics The water is a mixed calcium-sodium-magnesium bicarbonate type during most of the year. During the summer months when the flow in the river is low due to upstream diversion for irrigation, the river becomes sodium chloride in character. Tuolumne River is class 1 for irrigation, soft to moderately hard, and suitable for nearly all beneficial uses. A source of water quality degradation is abandoned flowing gas wells which discharge saline water into the river along the reach in the valley floor east of the station. Degradation from the saline well water is apparent during low flow periods when less dilution water is available. Station 30 is located approximately 25 miles downstream from Don Pedro Dam (Station 31a). Comparison of quality at these two stations show a considerable increase (from about 50 to 450 micromhos) in mineral concentrations at the downstream station.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	513	32	555	91.3
Temperature in °F	80	45	76	50
Dissolved oxygen in parts per million	13.5	5.7	10.6	6.8
Percent saturation	136	70	113	77
pH	8.4	6.6	8.4	7.1
Mineral constituents in parts per million				
Calcium (Ca)	55	2.8	55	8.4
Magnesium (Mg)	17	1.2	17	3.2
Sodium (Na)	117	1.6	117	7.0
Potassium (K)	10	0.5	10	5.1
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	164	12	164	26
Sulfate (SO_4)	26	0.0	26	8.6
Chloride (Cl)	206	0.0	206	12
Nitrate (NO_3)	4.6	0.0	4.6	0.8
Fluoride (F)	0.3	0.0	0.1	0.1
Boron (B)	0.18	0.0	0.1	0.0
Silica (SiO_2)	55	6.8	43	38
Total dissolved solids in parts per million	355	19	324	53
Percent sodium	54	16	54	32
Hardness as $CaCO_3$ in parts per million				
Total	206	11	206	25
Noncarbonate	72	0.0	72	3
Turbidity	45	0.0	30	0.0
Coliform in most probable number per milliliter	7,000.	<0.045	620	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.08	0.00	0.41	0.26
Solid alpha	0.83	0.00	0.31	0.00
Dissolved beta	12.43	0.00	4.05	1.16
Solid beta	8.57	0.00	5.10	1.29

WATER QUALITY VARIATIONS

TUOLUMNE RIVER AT HICKMAN-WATERFORD BRIDGE (STA. 30)

TUOLUMNE RIVER AT TUOLUMNE CITY (STA. 31)

Sampling Point Tuolumne City station is located in Section 7, Township 4 South, Range 8 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from Shiloh Road bridge, about 8 miles west of Modesto.

Period of Record April 1951 through December 1959.

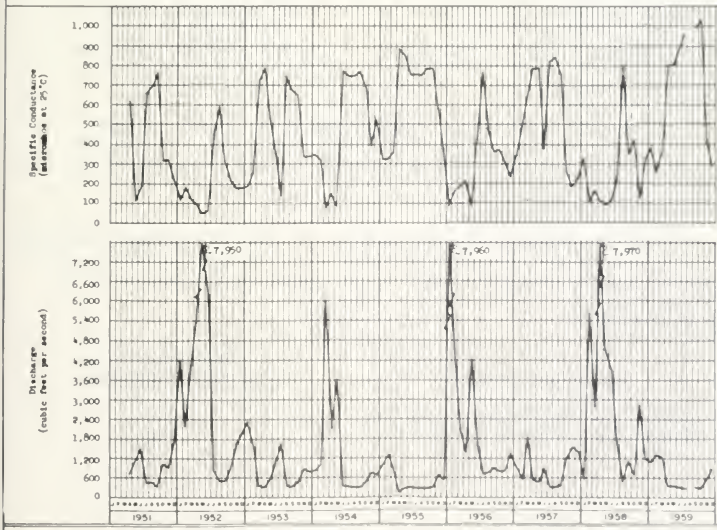
Water Quality Characteristics Antecedent data show the water is predominantly a sodium-calcium chloride type changing to sodium chloride type during the summer months. Tuolumne River water occasionally becomes class 2 for irrigation due to an excess of chloride concentration. Hardness ranges from slightly hard to very hard, limiting its beneficial uses. The City of Modesto discharges treated sewage into the river approximately 8 miles upstream from Station 31. No detectable change in quality has been noted at this station that can be attributed to the Modesto waste discharges.

Significant Water Quality Changes During 1959, the mineral concentrations observed at the station were the highest of record. During seven months, April through October 1959, conductivity exceeded 790 micromhos and reached a maximum of 1,030 micromhos in October. The poor quality was probably a result of the lack of dilution waters caused by the low runoff conditions experienced in 1959.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	84	45	77	[illegible]
Dissolved oxygen in parts per million	18.4	2.5	[illegible]	5.4
Percent saturation	224	29	[illegible]	63
pH	8.9	6.3	8.4	7.2
Mineral constituents in parts per million				
Calcium (Ca)	58	3.6	58	[illegible]
Magnesium (Mg)	18	1.4	18	8.6
Sodium (Na)	127	3.8	127	29
Potassium (K)	10	[illegible]	[illegible]	6.8
Carbonate (CO_3)	3.0	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	186	20	186	68
Sulfate (SO_4)	26	[illegible]	26	[illegible]
Chloride (Cl)	238	6.9	238	54
Nitrate (NO_3)	4.6	0.0	4.6	1.4
Fluoride (F)	[illegible]	0.0	0.1	0.1
Boron (B)	0.35	0.0	0.2	0.0
Silica (SiO_2)	57	6.5	46	38
Total dissolved solids in parts per million	588	34.2	588	149
Percent sodium	56	25	56	47
Hardness as $CaCO_3$ in parts per million				
Total	220	14	220	58
Noncarbonate	72	[illegible]	72	19
Turbidity	45	0.0	17	1
Coliform in most probable number per milliliter	>7,000	0.18	7,000	62
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.23	0.00	1.23	0.28
Solid alpha	1.10	0.00	0.42	0.09
Dissolved beta	24.3	0.00	6.14	2.47
Solid beta	6.1	0.00	1.97	0.00

WATER QUALITY VARIATIONS



TUOLUMNE RIVER AT TUOLUMNE CITY (STA. 31)

Stanislaus River Basin. The Stanislaus River drains a narrow basin on the western slope of the Sierra Nevada in northeastern San Joaquin River Basin. Enclosed within the boundaries of the watershed are 983 square miles of mountains and foothills. The drainage basin slopes westward, from an elevation of over 10,000 feet at the crest of the Sierra Nevada, to about 20 feet at its confluence with the San Joaquin River. Mean annual runoff of the Stanislaus River is about 1,210,000 acre-feet.

Extremely rugged topography, which includes bare granite peaks and steep canyons, limit development along the upper reaches of the basin. At lower elevations, the ridges and valleys are covered with timber which have promoted lumbering operations, while the foothills provide grazing land suitable for livestock raising. Other commerical pursuits are generally associated with recreation, mining activities, or catering to the tourist trade attracted by the scenery and colorful history of this area.

Waste discharges enter the drainage basin in small volumes. There has been no serious impairment of water quality caused by these small waste discharges.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

Monitoring Station	Page Number of Station Discussion
Stanislaus River below Tulloch Dam	306
Stanislaus River near mouth	308

STANISLAUS RIVER BELOW TULLOCH DAM (STA. 29a)

Sampling Point The Tulloch Dam station is located within Section 1, Township 1 South, Range 12 East, Mt. Diablo Base and Meridian. The monthly water samples were collected downstream from Tulloch Dam and approximately 6 miles northeast of Knights Ferry.

Period of Record July 1956 through December 1959.

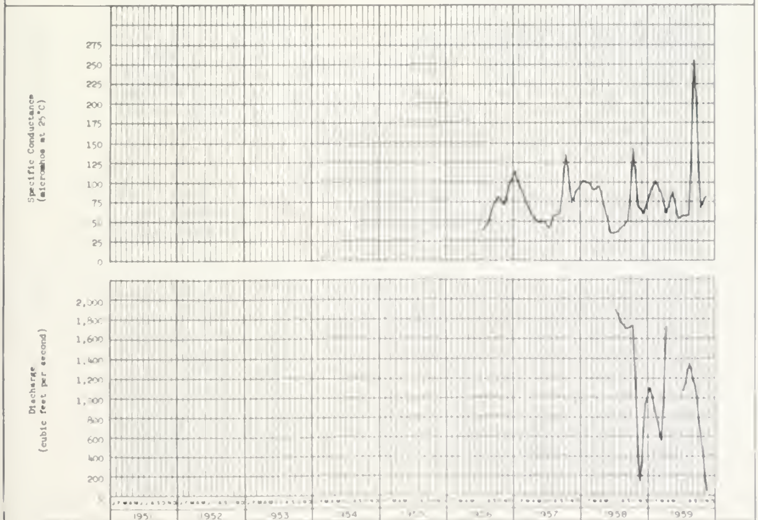
Water Quality Characteristics Past analyses show the water to be calcium-magnesium bicarbonate in character, soft, excellent in mineral quality and suitable for all beneficial uses. Quality of water at the station does not vary significantly, even with wide fluctuations in flow, indicating that regulation by upstream water resources developments apparently stabilizes mineral concentrations.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	255	35.1	255	53.[illegible]
Temperature in °F	72	[illegible]	72	48
Dissolved oxygen in parts per million	13.1	6.6	10.1	6.6
Percent saturation	104	78	94	73
pH	7.6	6.8	7.4	6.9
Mineral constituents in parts per million				
Calcium (Ca)	25	5.3	25	9.2
Magnesium (Mg)	9.4	[illegible].5	9.4	3.9
Sodium (Na)	15	1.4	15	2.3
Potassium (K)	2.4	[illegible]5	2.4	0.5
Carbonate (CO_3)	0.0	0.0	0.[illegible]	0.[illegible]
Bicarbonate (HCO_3)	143	17	143	25
Sulfate (SO_4)	7.[illegible]	0.[illegible]	7.[illegible]	6.7
Chloride (Cl)	7.0	0.0	7.[illegible]	0.5
Nitrate (NO_3)	1.3	0.[illegible]	1.3	0.[illegible]
Fluoride (F)	0.2	0.0	[illegible]1	0.1
Boron (B)	0.3	0.0	[illegible]3	[illegible]
Silica (SiO_2)	38	10	38	16
Total dissolved solids in parts per million	175	25	175	37
Percent sodium	24	4	24	11
Hardness as $CaCO_3$ in parts per million				
Total	101	14	101	22
Noncarbonate	19	0.[illegible]	10	0.[illegible]
Turbidity	80	0.0	80	[illegible]
Coliform in most probable number per milliliter	>7,000	0.045	2,400	[illegible].045
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.41	0.0[illegible]	0.41	0.00
Solid alpha	0.94	0.21	0.24	[illegible].21
Dissolved beta	5.33	0.0[illegible]	5.33	0.00
Solid beta	[illegible].08	1.24	3.08	1.2[illegible]

WATER QUALITY VARIATIONS



STANISLAUS RIVER BELOW TULLOCH DAM (STA. 29a)

STANISLAUS RIVER NEAR MOUTH (STA. 29)

Sampling Point Station 29 is located in Section 17, Township 3 South, Range 7 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the foot of a DWR gage house, about 1 mile above the junction of the Stanislaus River with the San Joaquin River and about 9 miles south of Manteca.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Antecedent data show the water to be a mixed calcium-magnesium bicarbonate type, soft to moderately hard, and excellent in mineral quality for nearly all beneficial uses. Mineral concentrations in water at the Stanislaus River mouth station are about 50 percent higher (40 to 250 micromhos) than those found at the upstream station at Tulloch Dam. This mineral pickup is attributed to tributary drainage and waste discharges.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	31[illegible]	47.3	[illegible]	[illegible]
Temperature in °F	84	41	84	51
Dissolved oxygen in parts per million	13.[illegible]	6.4	11.3	6.6
Percent saturation	134	61	[illegible]	75
pH	8.1	[illegible]	7.5	7.1
Mineral constituents in parts per million				
Calcium (Ca)	30	5.5	28	25
Magnesium (Mg)	12	1.2	1[illegible]	9.8
Sodium (Na)	19	1.5	19	3.5
Potassium (K)	3.4	0.7	2.9	2.1
Carbonate (CO_3)	5	0.0	5	[illegible]
Bicarbonate (HCO_3)	165	24	163	48
Sulfate (SO_4)	11	0.0	9.0	7.7
Chloride (Cl)	15	0.0	14	3.[illegible]
Nitrate (NO_3)	2.6	0.0	1.7	1.6
Fluoride (F)	0.2	0.0	0.1	0.1
Boron (B)	0.37	0.0	0.1	0.[illegible]
Silica (SiO_2)	37	9.3	[illegible]	32
Total dissolved solids in parts per million	210	32	207	69
Percent sodium	28	13	26	15
Hardness as $CaCO_3$ in parts per million				
Total	123	21	116	42
Noncarbonate	8	0.0	3	0.0
Turbidity	100	0.0	[illegible]	0.0
Coliform in most probable number per milliliter	>7,000.	0.23	7,000.	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.67	0.00	0.30	0.09
Solid alpha	1.22	0.00	0.53	0.44
Dissolved beta	10.01	0.00	2.59	2.52
Solid beta	11.[illegible]	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS

STANISLAUS RIVER NEAR MOUTH (STA. 29)

Sacramento-San Joaquin Delta Drainage (5c)

The Sacramento-San Joaquin Delta comprises the central portion of the great Central Valley Basin. The drainage area extends north to the City of Sacramento, south to the vicinity of Vernalis, east to the crest of the Sierra Nevada Range and west to Carquinez Straits. The watersheds of the Calaveras, Cosumnes and Mokelumne Rivers are included in the area. Major streams entering the delta area include the Sacramento River from the north, the San Joaquin River from the south and the Calaveras, Cosumnes and Mokelumne Rivers from the east. The Sacramento-San Joaquin Delta Drainage comprises approximately 4,154 square miles, approximately 2,390 square miles of which are classified as mountain and foothill terrain.

A broad gentle-sloping plain, cut into islands by numerous waterways, lies between the foothills on the east and Carquinez Straits on the west. This fertile agricultural land comprises an area of 1,764 square miles and is referred to as the Sacramento-San Joaquin Delta.

Prominent uses of water in the delta include irrigation, power development, salinity control, export under operation of the Central Valley Project and East Bay Municipal Utility District, and water associated recreation. Many varied industries are located in the western end of the delta and depend upon the river for a source of process and cooling waters.

Twenty-four sampling stations are being monitored to obtain information and to provide a continuing check on quality of surface water resources in the delta. Monitored basins with the number of sampling stations in parentheses are as follows:

Sacramento-San Joaquin Delta (18)
Cosumnes River Basin (2)
Mokelumne River Basin (2)
Calaveras River Basin (2)

Sacramento-San Joaquin Delta. The central delta area comprises over 50 islands and tracts reclaimed, since 1852, from former tule swamps and overflow lands. Included in the area are about 469,000 acres lying generally below an elevation of five feet above sea level. A survey in 1955 determined that approximately 386,000 acres were agricultural and 83,000 acres nonagricultural. Acreage classified nonagricultural included approximately 42,000 acres of water surface made up of three major flooded areas and a maze of interconnected waterways.

The interest of many public agencies in the water quality of the delta prompted the planning and organization of a water quality surveillance program and the establishment of a large number of monitoring stations on the maze of rivers, canals, and sloughs making up the water channels in the delta. The escaping of poor quality water trapped in the more or less deadend portions of the delta channels when heavy drafts at the Central Valley Project pumping plants induce movement, and the effect of irrigation and drainage practices, have caused considerable concern in the past.

The quality of water in the delta area is influenced primarily by five factors: (a) the tidal motivated incursion of saline water from Suisun Bay and the Pacific Ocean into the delta, (b) flow conditions in streams tributary to the delta, (c) Central Valley Project diversions to delta upland areas, (d) irrigation diversions to and return flows from the many irrigated islands in the delta area, and (e) accretions from ground water acquifers in the delta.

The following tabulation presents the names of stations maintained to monitor quality of surface water in the delta and the page on which each is discussed:

LINDSEY SLOUGH NEAR RIO VISTA (STA. 110)

Sampling Point Lindsey Slough station is located in Section 25, Township 5 North, Range 2 West, Mt. Diablo Base and Meridian. Monthly grab samples are taken from the boat landing on the right bank at California Packing Corporation's Montezuma Ranch headquarters, and about 6 miles north of Rio Vista.

Period of Record October 1952 through December 1959.

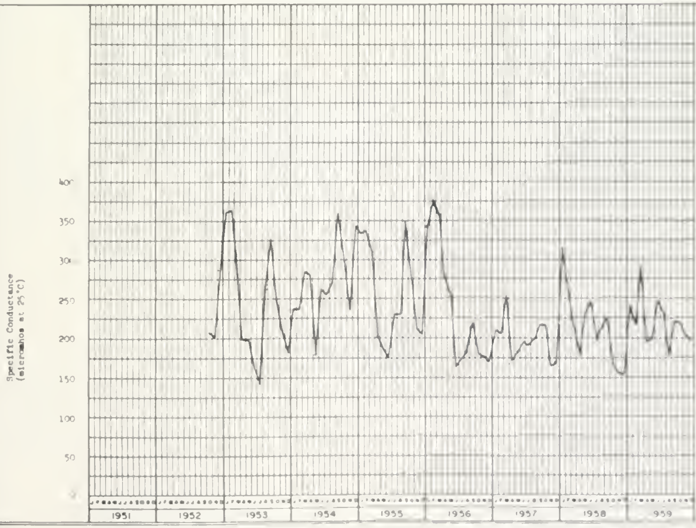
Water Quality Characteristics The water is a complex calcium-magnesium-sodium bicarbonate type, low in mineral content and well suited for domestic, industrial and class 1 irrigation uses. Because tidal oscillations and pumping maintain a nearly constant flow through the slough, the water quality at this station has remained fairly consistent throughout the period of record and generally reflects the quality of the Sacramento River at Rio Vista (Station 16).

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	377	143	201	178
Temperature in °F	80	44	78	68
Dissolved oxygen in parts per million	11.4	[illegible]	[illegible]	[illegible]
Percent saturation	104	69	[illegible]	84
pH	[illegible]	7.1	7.5	7.3
Mineral constituents in parts per million				
Calcium (Ca)	24	11	16	14
Magnesium (Mg)	19	[illegible]	9.2	8.3
Sodium (Na)	32	[illegible]	25	14
Potassium (K)	3.3	1.2	2.3	2.2
Carbonate (CO_3)	2	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	160	[illegible]	112	78
Sulfate (SO_4)	25	13	19	17
Chloride (Cl)	29	[illegible]	20	9.8
Nitrate (NO_3)	1.4	[illegible]	1.1	[illegible]
Fluoride (F)	0.4	[illegible]	0.1	0.1
Boron (B)	0.7	[illegible]	0.7	[illegible]
Silica (SiO_2)	24	15	20	18
Total dissolved solids in parts per million	230	87	177	108
Percent sodium	[illegible]	22	[illegible]	29
Hardness as $CaCO_3$ in parts per million				
Total	139	42	100	60
Noncarbonate	12	[illegible]	8	[illegible]
Turbidity	700	7	100	12
Coliform in most probable number per milliliter	>7,000	2.3	2,400	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



LINDSEY SLOUGH NEAR RIO VISTA (STA. 110)

Sampling Point Station 16 is located in Section 31, Township 4 North, Range 3 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from a pier on the right bank at the U. S. Department of Army installation located about 1.0 mile south of Rio Vista.

Period of Record April 1951 through December 1959.

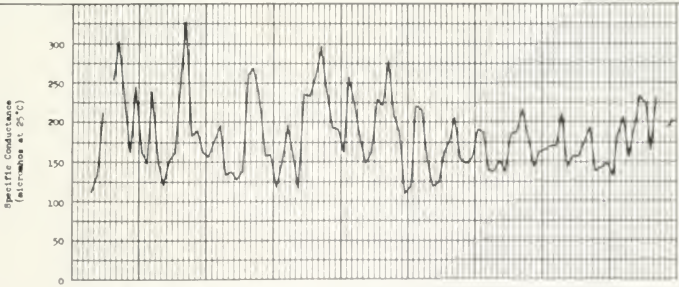
Water Quality Characteristics Antecedent data reveal the water to be a mixed calcium-magnesium-sodium bicarbonate type, soft to slightly hard, and generally within mineral requirements for domestic and class 1 irrigation use.

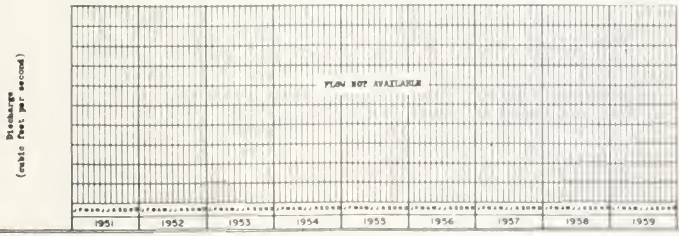
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	109	233	132
Temperature in °F	78	43	73	48
Dissolved oxygen in parts per million	18.8	5.9	[illegible]	7.7
Percent saturation	178	64	[illegible]	84
pH	8.2	6.8	7.7	7.0
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	8.8	15	15
Magnesium (Mg)	12	4.3	11	7.2
Sodium (Na)	26	5.4	19	6.7
Potassium (K)	2.9	0.8	2.0	1.7
Carbonate (CO_3)	0.0	0.0	0.0	[illegible]
Bicarbonate (HCO_3)	164	43	106	48
Sulfate (SO_4)	20	3.1	15	10
Chloride (Cl)	26	3.1	16	6.3
Nitrate (NO_3)	1.4	0.1	0.5	0.3
Fluoride (F)	0.4	0.0	0.1	0.1
Boron (B)	0.39	0.05	0.1	0.0
Silica (SiO_2)	26	14	19	18
Total dissolved solids in parts per million	204	68	146	83
Percent sodium	37	19	34	23
Hardness as $CaCO_3$ in parts per million				
Total	122	40	81	48
Noncarbonate	10	0.0	9	0.0
Turbidity	600	1	70	12
Coliform in most probable number per milliliter	70,000.	0.62	>7,000.	0.62
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.56	0.00	0.09	0.09
Solid alpha	0.79	0.00	0.27	0.20
Dissolved beta	20.20	0.00	2.28	1.56
Solid beta	11.41	[illegible]	11.41	1.03

WATER QUALITY VARIATIONS





SACRAMENTO RIVER AT RIO VISTA (STA. 16)

DELTA CROSS CHANNEL NEAR WALNUT GROVE (STA. 98)

Sampling Point Station 98 is located in Section 35, Township 5 North, Range 4 East, Mt. Diablo Base and Meridian. The monthly water samples were collected on the left bank about 0.2 mile downstream from the control gates when the gates are open, or from the Walnut Grove bridge over the Sacramento River when the gates are closed.

Period of Record September 1952 through December 1959.

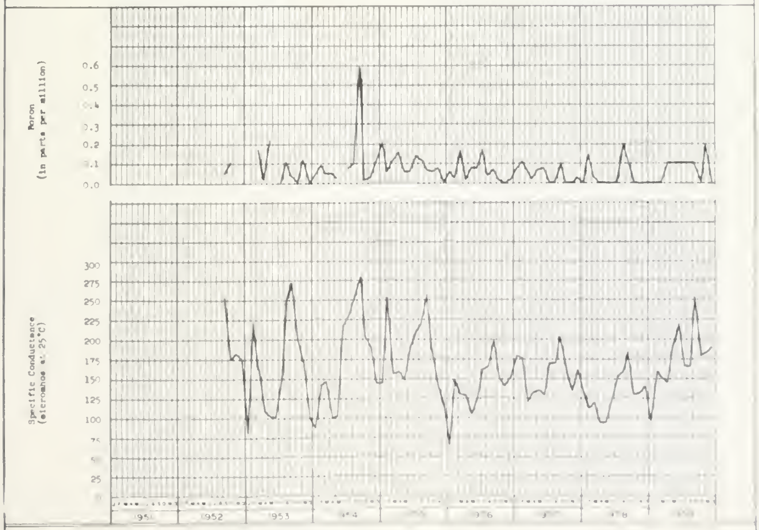
Water Quality Characteristics The Delta Cross Channel is a unit of the Central Valley Project and is comprised of artificial and natural channels used to divert water from the Sacramento River near Walnut Grove. The diverted water flows through various channels of the delta to the intake of the Tracy pumping plant. The water at this station is calcium-magnesium bicarbonate in character, soft to slightly hard, and generally within accepted mineral limits for domestic and class 1 irrigation use.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	280	84	253	97
Temperature in °F	77	44	74	48
Dissolved oxygen in parts per million	12.2	[illegible] 7	1[illegible] 5	7 [illegible]
Percent saturation	121	63	[illegible]	7[illegible]
pH	8.2	6.8	7.5	7.1
Mineral constituents in parts per million				
Calcium (Ca)	20	5.9	18	[illegible]
Magnesium (Mg)	11	2.7	9.8	9.[illegible]
Sodium (Na)	24	1.6	21	4.3
Potassium (K)	2.9	0.5	1.7	[illegible]
Carbonate (CO_3)	0.[illegible]	0.0	[illegible]	0.[illegible]
Bicarbonate (HCO_3)	123	33	118	3[illegible]
Sulfate (SO_4)	19	4.0	13	13
Chloride (Cl)	20	1.3	17	[illegible]
Nitrate (NO_3)	2.1	0.[illegible]	1.2	[illegible]
Fluoride (F)	0.3	[illegible]	0.1	[illegible]
Boron (B)	0.59	[illegible]	0.2	[illegible]
Silica (SiO_2)	26	1[illegible]	2[illegible]	17
Total dissolved solids in parts per million	175	43	158	64
Percent sodium	37	15	35	20
Hardness as $CaCO_3$ in parts per million				
Total	90	28	84	37
Noncarbonate	13	0.0	8	[illegible]
Turbidity	340	0.9	50	[illegible]
Coliform in most probable number per milliliter	70,000.	[illegible].62	[illegible],000	[illegible] 2
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible].43		[illegible].43	
Solid alpha	[illegible].32		[illegible].17	
Dissolved beta	7.38		3.79	
Solid beta	7.0		5.42	

WATER QUALITY VARIATIONS



DELTA CROSS CHANNEL NEAR WALNUT GROVE (STA. 98)

LITTLE POTATO SLOUGH AT TERMINOUS (STA. 99)

Sampling Point Station 99 is located in Section 13, Township 3 North, Range 4 East, Mt. Diablo Base and Meridian. Monthly grab samples were taken from a boat dock on the east bank, about 250 feet north of State Highway 12 bridge.

Period of Record September 1952 through December 1959.

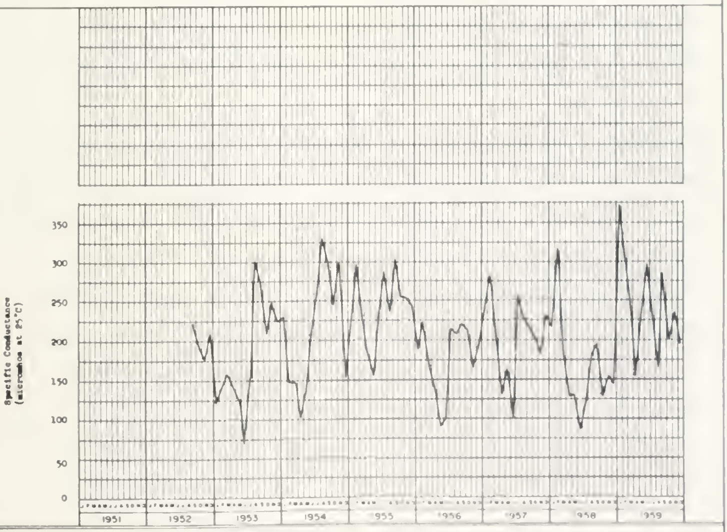
Water Quality Characteristics Antecedent data reveal the water to be a complex calcium-magnesium-sodium bicarbonate type of excellent mineral quality, slightly hard to moderately hard, class 1 for irrigation and suitable for domestic uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	71	48
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	7.9
Percent saturation	[illegible]	[illegible]	[illegible]	80
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	24	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	27	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	28	111	[illegible]
Sulfate (SO_4)	[illegible]	2.4	13	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	25	[illegible]	21	[illegible]
Total dissolved solids in parts per million	223	42	223	94
Percent sodium	42	22	38	24
Hardness as $CaCO_3$ in parts per million				
Total	116	26	[illegible]	55
Noncarbonate	46	[illegible]	[illegible]	[illegible]
Turbidity	150	2	[illegible]	2
Coliform in most probable number per milliliter	>7,000.	0.23	[illegible]	13
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



LITTLE POTATO SLOUGH AT TERMINOUS (STA. 99)

SAN JOAQUIN RIVER AT MOSSDALE BRIDGE (STA. 102)

Sampling Point Station 102 is located in Section 4, Township 2 South, Range 6 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from a boat landing on the left bank, just downstream from Mossdale Bridge on U. S. Highway 50, about 12 miles south of Stockton and 7 miles northeast of Tracy.

Period of Record September 1952 through December 1959.

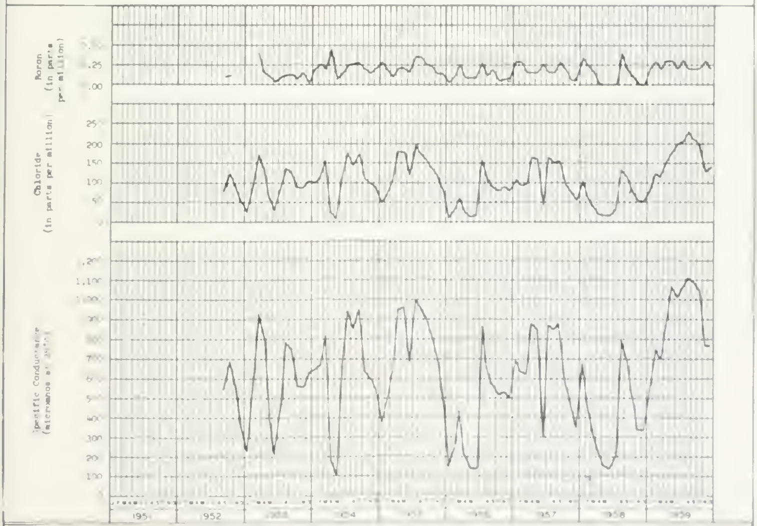
Water Quality Characteristics Water at the station is predominantly a sodium chloride type, moderately hard to very hard, and not recommended for domestic and some industrial uses. During the summer months the concentration of dissolved solids is often sufficiently high to place the water in class 2 for irrigation. The quality of water at this station is influenced by tidal action, fresh water inflow to the delta, irrigation diversions and return flows, and ground water accretions. Wide seasonal variations in quality are characteristics of the water at Station 102.

Significant Water Quality Changes The 1959 water year was considerably below normal and the quality of water reflected the effects of low flow conditions. During 1959, the maximum values for conductivity and chlorides occurred in August, 1,110 micromhos and 232 ppm, respectively. The conductivity value of 1,110 micromhos is the maximum of record at this station and represents a significant increase over the 1958 maximum of 793 micromhos. Because of conductivity and chlorides the water was class 2 for irrigation from May to October 1959.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	82	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	176	[illegible]	151	[illegible]
pH	[illegible]	[illegible]	[illegible]	7.2
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	7.2	58	[illegible]
Magnesium (Mg)	44	2.4	25	24
Sodium (Na)	[illegible]	[illegible]	132	60
Potassium (K)	[illegible]	[illegible]	6.4	5.8
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	32	[illegible]	103
Sulfate (SO_4)	[illegible]	[illegible]	115	75
Chloride (Cl)	[illegible]	[illegible]	232	82
Nitrate (NO_3)	[illegible]	[illegible]	3.4	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	34	9.3	27	[illegible]
Total dissolved solids in parts per million	633	58	633	304
Percent sodium	[illegible]	32	54	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	28	246	116
Noncarbonate	99	[illegible]	95	32
Turbidity	[illegible]	[illegible]	85	[illegible]
Coliform in most probable number per milliliter	[illegible]	[illegible]	>7,000	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



SAN JOAQUIN RIVER AT MOSSDALE BRIDGE (STA. 102)

SAN JOAQUIN RIVER AT GARWOOD BRIDGE (STA. 101)

Sampling Point The station is located in Section 16, Township 1 North, Range 6 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from a boat landing on the left bank, upstream from State Highway 4 bridge and approximately 4 miles west of Stockton.

Period of Record September 1952 through December 1959.

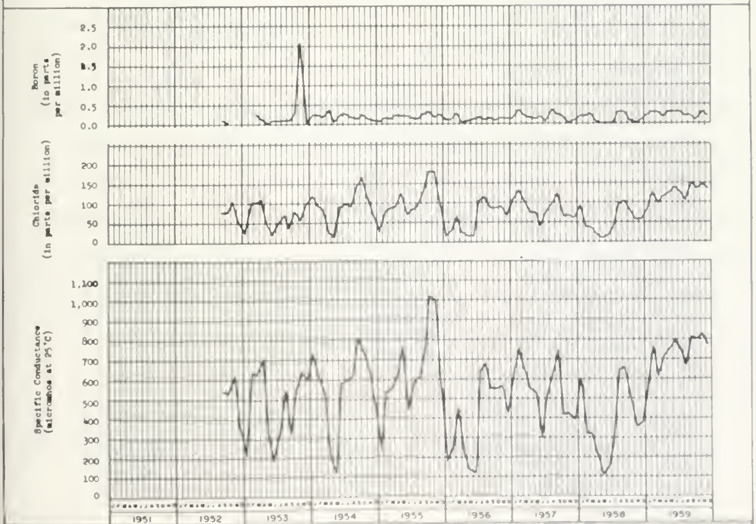
Water Quality Characteristics Water at Station 101 is predominantly sodium chloride in character, moderately hard, class 1 for irrigation and suitable for domestic use. Analyses of samples collected at this station indicate Sacramento River water, which traverses the delta through the many interconnected channels, and water from other streams tributary to the delta, significantly affects the quality of San Joaquin River at Garwood Bridge. Quality of water generally improves at the Garwood Bridge station (averaging about 250 micromhos) when mineral concentrations are compared to the next upstream station at Mossdale Bridge.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	48
Dissolved oxygen in parts per million	11.6	[illegible]	11.6	[illegible]
Percent saturation	120	[illegible]	[illegible]	67
pH	8.4	[illegible]	[illegible]	7.2
Mineral constituents in parts per million				
Calcium (Ca)	54	7.8	41	39
Magnesium (Mg)	22	2.5	19	15
Sodium (Na)	119	9.2	101	54
Potassium (K)	8.[illegible]	1.2	8.[illegible]	6.7
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	37	[illegible]	10[illegible]
Sulfate (SO_4)	6[illegible]	[illegible].8	6[illegible]	[illegible]
Chloride (Cl)	182	11	152	79
Nitrate (NO_3)	4.7	[illegible].4	4.7	0.6
Fluoride (F)	[illegible].5	[illegible]	[illegible].2	0.0
Boron (B)	2.1	[illegible]	[illegible].3	0.1
Silica (SiO_2)	23	2.9	12	4.8
Total dissolved solids in parts per million	575	69	467	[illegible]
Percent sodium	57	37	57	51
Hardness as $CaCO_3$ in parts per million				
Total	227	31	185	113
Noncarbonate	64	0.[illegible]	64	5
Turbidity	310	0.0	40	[illegible]
Coliform in most probable number per milliliter	>7,000	2.3	>7,000	62
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



SAN JOAQUIN RIVER AT GARWOOD BRIDGE (STA. 101)

SAN JOAQUIN RIVER AT ANTIOCH (STA. 28)

Sampling Point The Antioch station is located in Section 18, Township 2 North, Range 2 East, Mt. Diablo Base and Meridian. Monthly water samples were collected from the left bank at old Antioch Water Works pier, Fulton Shipyard Road, near the northeast city limits of Antioch.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Quality of water at Station 28 is affected by sea-water incursion from San Francisco Bay. During the summer and fall months when outflow from the delta is insufficient to repel sea-water incursion, the water is sodium chloride in character, poor in quality, class 3 for irrigation and unsuitable for nearly all domestic and industrial uses. In the winter and spring, when river outflow from the delta increases, the water is sodium bicarbonate in character, excellent in quality, class 1 for irrigation, and within mineral quality requirements for domestic use.

Significant Water Quality Changes During 1959, analyses showed quality of water at the Antioch station was generally poorer from May through December than in previous years of record. In the first four months of 1959, conductivity did not exceed 500 micromhos; however, in May and June it increased to about 1,000 micromhos, and during the remaining six months conductivity was in excess of 1,500 micromhos with a maximum of 6,010 micromhos occurring in July. The high specific conductance of water at Antioch, in 1959, is attributable to the low outflow from the delta. Low outflow resulted from the considerably below normal precipitation over much of the drainage area tributary to the delta.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	6,1[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	77	42	77	[illegible]
Dissolved oxygen in parts per million	18.[illegible]	7.[illegible]	[illegible]	[illegible]
Percent saturation	177	7[illegible]	97	[illegible]
pH	8.[illegible]	[illegible].8	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	61	8[illegible]	74	[illegible]
Magnesium (Mg)	138	[illegible]	66	[illegible]
Sodium (Na)	1,[illegible]	7[illegible]	[illegible]	[illegible]
Potassium (K)	72	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	13[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	294	[illegible]	[illegible]	[illegible]
Chloride (Cl)	1,95[illegible]	[illegible]	[illegible]	77
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	1.[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	1.1	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	23	[illegible]	18	16
Total dissolved solids in parts per million	3,600	[illegible]	[illegible]	[illegible]
Percent sodium	77	[illegible]	77	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	[illegible]	[illegible]	[illegible]
Noncarbonate	643	[illegible]	594	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	24,000.	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible].6[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	1.46	[illegible]	[illegible]	[illegible]
Dissolved beta	18.15	[illegible]	[illegible]	[illegible]
Solid beta	16.35	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS

SAN JOAQUIN RIVER AT ANTIOCH (STA. 28)

STOCKTON SHIP CHANNEL ON RINDGE ISLAND (STA. 100)

Sampling Point Stockton Ship Channel station is located in Section 27, Township 2 North, Range 5 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from a boat landing on the right bank of the ship channel, at the southeast corner of Rindge Tract, and near the junction of Fourteen Mile Slough.

Period of Record September 1952 through December 1959.

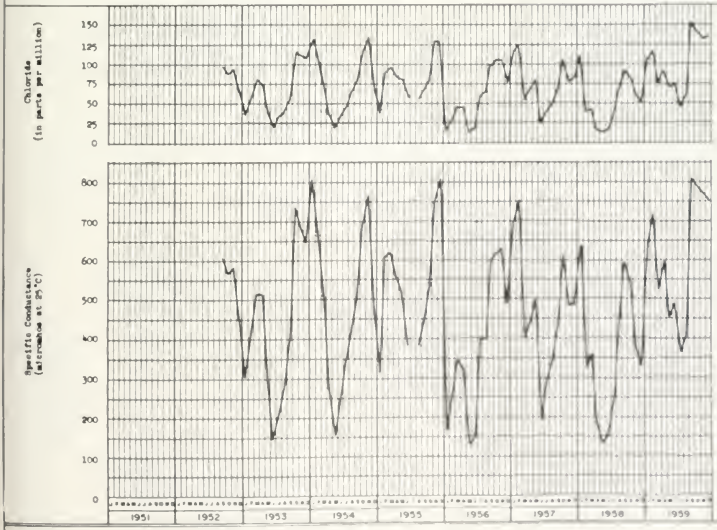
Water Quality Characteristics Antecedent data show the water to be predominantly sodium chloride in character during the winter months, changing to sodium bicarbonate during the summer months. The water is normally well within the limits for class 1 irrigation and domestic uses, and is in the moderately hard range.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	810	[illegible]
Temperature in °F	84	43	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	12.5	[illegible]
Percent saturation	139	[illegible]	132	73
pH	8.4	[illegible]	8.1	7.2
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	22	[illegible]	16	13
Sodium (Na)	[illegible]	12	[illegible]	[illegible]
Potassium (K)	8.6	[illegible]	[illegible]	3.4
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	198	42	[illegible]	[illegible]
Sulfate (SO_4)	98	[illegible]	40	[illegible]
Chloride (Cl)	[illegible]	[illegible]	152	[illegible]
Nitrate (NO_3)	14	[illegible]	[illegible]	1.1
Fluoride (F)	[illegible]	[illegible]	0.2	[illegible]
Boron (B)	1.6	[illegible]	0.3	[illegible]
Silica (SiO_2)	23	[illegible]	18	[illegible]
Total dissolved solids in parts per million	473	83	461	203
Percent sodium	57	[illegible]	57	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	210	36	182	109
Noncarbonate	124	[illegible]	64	4
Turbidity	[illegible]	1	85	1
Coliform in most probable number per milliliter	>7,000	0.62	>7,000	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



STOCKTON SHIP CHANNEL ON RINDGE ISLAND (STA. 100)

OLD RIVER NEAR TRACY (STA. 103)

Sampling Point Station 103 is located in Section 6, Township 2 South, Range 5 East, Mt. Diablo Base and Meridian. Samples were collected from the trash rack of a pump intake on the left bank, 500 feet from Lammers Road about 5.0 miles northwest of Tracy.

Period of Record October 1952 through December 1959.

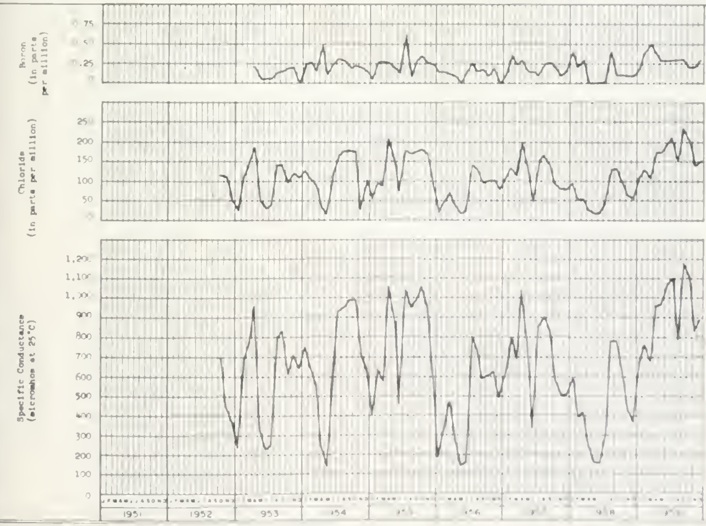
Water Quality Characteristics Water at Old River near Tracy is predominantl a sodium chloride type, frequently class 2 for irrigation (usually during the summer months), moderately hard to very hard, and not recommended for domestic and some industrial uses.

Significant Water Quality Changes The 1959 maximum values for conductivity and chlorides (1,180 micromhos and 234 ppm, respectively) established new maximums for the period of record and represent a significant increase of values found at this station in prior years of record. These high values are attributed to the low flow conditions existing in streams tributary to this portion of the delta.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	1,180	[illegible]
Temperature in °F	81	[illegible]	80	[illegible]
Dissolved oxygen in parts per million	16.[illegible]	5.5	16.0	6.5
Percent saturation	[illegible]	[illegible]	170	71
pH	8.5	7.[illegible]	8.1	7.2
Mineral constituents in parts per million				
Calcium (Ca)	67	9.2	67	53
Magnesium (Mg)	32	3.8	32	23
Sodium (Na)	134	12	134	71
Potassium (K)	7.2	1.2	7.2	5.[illegible]
Carbonate (CO_3)	6	[illegible]	6	0.0
Bicarbonate (HCO_3)	215	38	215	118
Sulfate (SO_4)	81	9.1	81	74
Chloride (Cl)	234	17	234	107
Nitrate (NO_3)	[illegible]	[illegible]	5.1	0.3
Fluoride (F)	[illegible]	[illegible]	[illegible]	0.0
Boron (B)	0.63	[illegible]	0.5	0.2
Silica (SiO_2)	27	11	19	13
Total dissolved solids in parts per million	673	81	673	376
Percent sodium	54	37	54	49
Hardness as $CaCO_3$ in parts per million				
Total	298	36	298	147
Noncarbonate	129	3	123	49
Turbidity	110	0.[illegible]	11[illegible]	[illegible]
Coliform in most probable number per milliliter	[illegible]	[illegible]	[illegible]	2.1
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



OLD RIVER NEAR TRACY (STA 103)

OLD RIVER AT CLIFTON COURT FERRY (STA. 104)

Sampling Point Clifton Court Ferry station is located in Section 20, Township 1 South, Range 4 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the ferry on the left bank, about 0.3 mile downstream from a tide stage recorder, 6.0 miles southeast of Byron, 10 miles northwest of Tracy.

Period of Record September 1952 through December 1959.

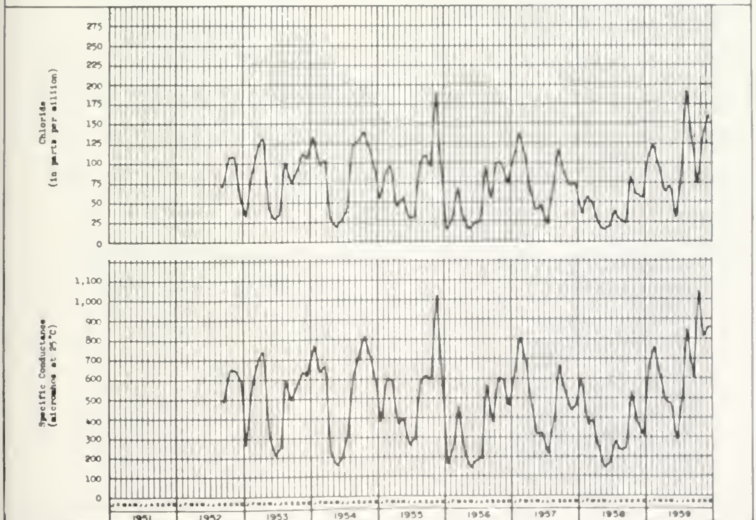
Water Quality Characteristics Antecedent data reveal the water to be predominantly sodium chloride in character, slightly hard to very hard, and occasionally class 2 for irrigation due to high conductivity and chloride concentrations associated with sea-water incursion and poor quality river inflows.

Significant Water Quality Changes During 1959, the maximum values for conductivity and chloride were 1,040 micromhos and 198 ppm, respectively. As at other delta stations maximums of record occurred, representing a significant increase over previously reported values. Low flow conditions in streams tributary to the delta probably caused these maximum values.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum 1959	Minimum 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	28	16
Magnesium (Mg)	21	[illegible]	[illegible]	[illegible]
Sodium (Na)	127	[illegible]	127	27
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	197	[illegible]	197	[illegible]
Sulfate (SO_4)	79	[illegible]	38	[illegible]
Chloride (Cl)	198	14	198	31
Nitrate (NO_3)	4.7	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	31	3.9	18	[illegible]
Total dissolved solids in parts per million	590	89	590	166
Percent sodium	67	35	67	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	239	38	239	[illegible]
Noncarbonate	87	1	77	14
Turbidity	120	[illegible]	85	[illegible]
Coliform in most probable number per milliliter	>7,000.	[illegible]	>7,000	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



OLD RIVER AT CLIFTON COURT FERRY (STA. 104)

OLD RIVER AT ORWOOD BRIDGE (STA. 108)

Sampling Point Station 108 is located in Section 17, Township 1 North, Range 4 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from a boat dock on the right bank, at Atchison, Topeka and Santa Fe Railroad bridge and about 6.0 miles northeast of Byron.

Period of Record September 1952 through December 1959.

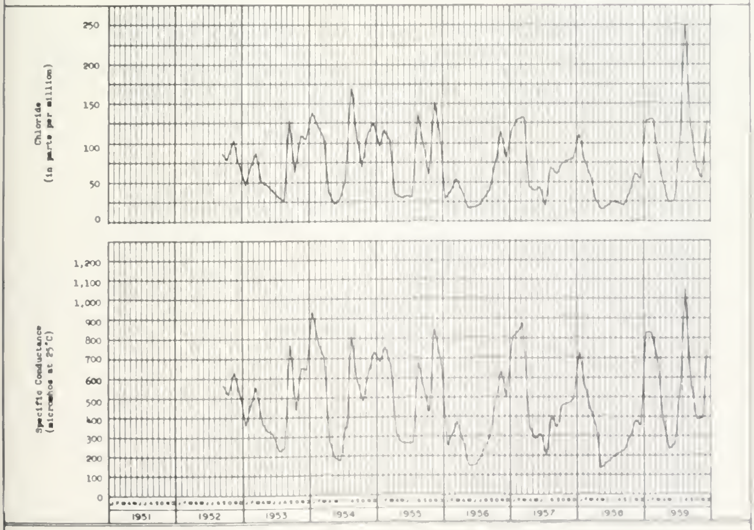
Water Quality Characteristics Past analyses show the water to be sodium chloride in character during the winter and summer months and a complex sodium-calcium-magnesium bicarbonate character during the spring and fall months. Samples of water from Station 108, with one exception, usually met class 1 irrigation water requirements. Old River water also met mineral quality standards for domestic use and ranged from slightly hard to moderately hard.

Significant Water Quality Changes During August 1959 conductivity and chlorides were 1,050 micromhos and 250 ppm, respectively. These values, which are new maximums for the period of record, changed the classification of the water for irrigation use from class 1 to class 2. High quality Sacramento River water, drawn across the delta by the Tracy Pumping Plant in conjunction with increased releases of stored water from Shasta and Folsom reservoirs, partially alleviated the sea-water incursion problem believed responsible for these high values.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	79	44	78	49
Dissolved oxygen in parts per million	10.4	6.2	[illegible]	[illegible]
Percent saturation	91	69	[illegible]	[illegible]
pH	8.1	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	55	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	27	[illegible]	[illegible]	[illegible]
Sodium (Na)	153	12	153	[illegible]
Potassium (K)	4.3	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	0.0	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	166	42	[illegible]	[illegible]
Sulfate (SO_4)	132	[illegible]	[illegible]	[illegible]
Chloride (Cl)	250	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	13	[illegible]	[illegible]	[illegible]
Fluoride (F)	0.5	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	26	[illegible]	19	[illegible]
Total dissolved solids in parts per million	590	[illegible]	[illegible]	[illegible]
Percent sodium	68	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	244	36	[illegible]	[illegible]
Noncarbonate	164	2	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	>7,000	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



OLD RIVER AT ORWOOD BRIDGE (STA 108)

OLD RIVER AT MANDEVILLE ISLAND (STA. 112)

Sampling Point Station 112 is located in Section 6, Township 2 North, Range 4 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the northwest side of Mandeville Island, approximately 1.0 mile from the mouth of Old River, and about 5.0 miles northwest of Mandeville School, along the levee road.

Period of Record December 1954 through December 1959.

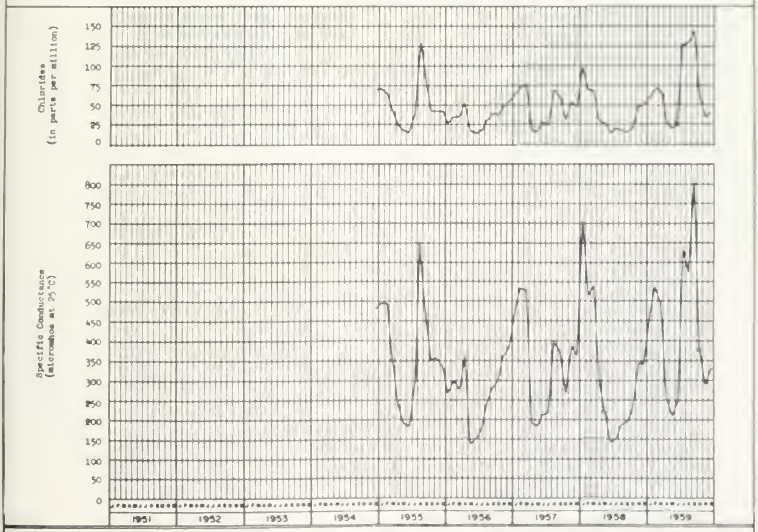
Water Quality Characteristics Water at Station 112 is a complex sodium-calcium-magnesium bicarbonate-chloride type, class 1 for irrigation, slightly to moderately hard and suitable for domestic and some industrial uses. The Old River channel is the main carrier of high quality Sacramento River water while it traverses the delta en route to the Tracy Pumping Plant.

Significant Water Quality Changes During September 1959, conductivity and chloride values of 801 micromhos and 145 ppm, respectively, established new maximums of record.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	79	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	97	67	[illegible]	82
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	38	[illegible]
Magnesium (Mg)	19	3.9	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	9.4	1.2	9.4	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	194	42	194	72
Sulfate (SO_4)	68	[illegible]	[illegible]	[illegible]
Chloride (Cl)	145	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	8.1	[illegible]	2.6	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	22	[illegible]	15	14
Total dissolved solids in parts per million	457	84	457	132
Percent sodium	62	31	62	36
Hardness as $CaCO_3$ in parts per million				
Total	217	[illegible]	172	66
Noncarbonate	129	[illegible]	71	[illegible]
Turbidity	50	3	50	3
Coliform in most probable number per milliliter	>7,000	1.3	7,000	2.3
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



OLD RIVER AT MANDEVILLE ISLAND (STA. 112)

GRANT LINE CANAL AT TRACY ROAD BRIDGE (STA. 103a)

Sampling Point The Grant Line Canal station is located in Section 30, Township 1 South, Range 5 East, Mt. Diablo Base and Meridian. The monthly water samples were collected from a boat dock at Tracy Road Bridge approximately 5 miles north of Tracy.

Period of Record July 1958 through December 1959.

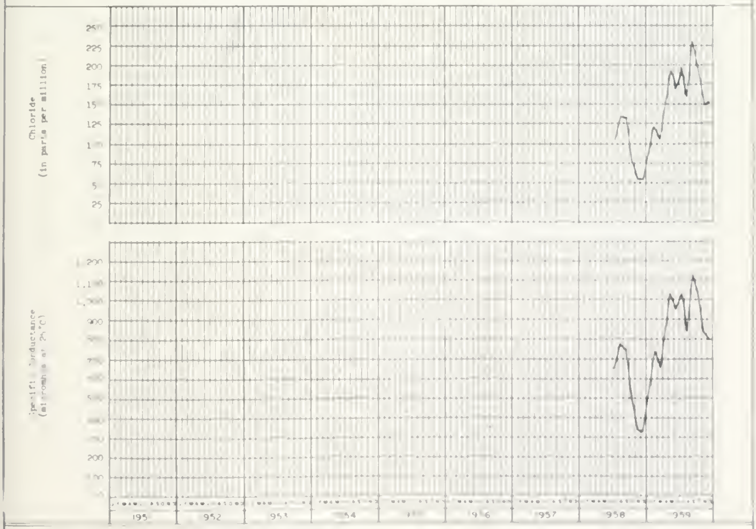
Water Quality Characteristics Past analyses show the water to be sodium chloride in character, moderately hard to very hard, and class 1 to 2 for irrigation.

Significant Water Quality Changes The maximum 1959 values for conductivity and chlorides (September sample) were 1,130 micromhos and 230 ppm, respectively, representing a significant increase over the 1958 values for these characteristics. Even though these values are new maximums of record, because of the short period of record, it is difficult to ascertain if significant changes occurred.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	1,130	332	1,130	536
Temperature in °F	80	47	80	47
Dissolved oxygen in parts per million	13.3	4.9	13.3	7.5
Percent saturation	140	59	140	84
pH	8.9	7.2	8.9	7.2
Mineral constituents in parts per million				
Calcium (Ca)	64	18	64	27
Magnesium (Mg)	30	7.5	27	13
Sodium (Na)	139	39	139	59
Potassium (K)	8.6	1.4	8.6	2.5
Carbonate (CO_3)	12	0.0	12	0.0
Bicarbonate (HCO_3)	205	67	205	104
Sulfate (SO_4)	77	33	77	45
Chloride (Cl)	230	54	230	87
Nitrate (NO_3)	2.7	0.2	2.7	[illegible]
Fluoride (F)	[illegible]	0.0	0.3	[illegible]
Boron (B)	0.4	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	24	0.2	24	[illegible]
Total dissolved solids in parts per million	658	198	658	306
Percent sodium	[illegible]	49	54	51
Hardness as $CaCO_3$ in parts per million				
Total	272	76	272	121
Noncarbonate	104	21	[illegible]	36
Turbidity	75	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	See 1959	See 1959	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



GRANT LINE CANAL AT TRACY ROAD BRIDGE (STA. 103a)

DELTA-MENDOTA CANAL NEAR TRACY (STA. 93)

Sampling Point Station 93 is located in Section 30, Township 1 South, Range 4 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from left bank downstream from Byron-Bethany Road crossing, about 1 mile from Tracy Pumping Plant, about 10 miles northwest of Tracy.

Period of Record July 1952 through December 1959.

Water Quality Characteristics The water at Station 93 is predominantly sodium chloride in character, changing to sodium bicarbonate in the late spring due to increased runoff, and then reverting back again to sodium chloride. The canal water contains moderate amounts of dissolved solids and is usually class 1 for irrigation. In August 1959, a high chloride concentration and percent sodium placed the water in class 2. The hardness is slightly hard to moderately hard, limiting some domestic and industrial water uses.

Significant Water Quality Changes During 1959, the maximum values for conductivity and chloride were 886 micromhos and 208 ppm, respectively. The 208 ppm chloride concentration is a maximum of record and placed the water in class 2 for irrigation use.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	886	294
Temperature in °F	80	42	79	[illegible]1
Dissolved oxygen in parts per million	11.1	6.8	11.1	6.8
Percent saturation	123	6[illegible]	123	78
pH	8.7	6.7	8.1	7.3
Mineral constituents in parts per million				
Calcium (Ca)	54	8.8	24	21
Magnesium (Mg)	26	2.9	15	9.6
Sodium (Na)	123	13	12[illegible]	27
Potassium (K)	5.2	1.0	4.6	1.9
Carbonate (CO_3)	[illegible]	0.0	[illegible]	[illegible]0
Bicarbonate (HCO_3)	186	38	1[illegible]	81
Sulfate (SO_4)	102	5.8	34	34
Chloride (Cl)	208	17	208	31
Nitrate (NO_3)	5.7	0.0	[illegible]8	0.8
Fluoride (F)	[illegible].5	0.0	0.2	0.1
Boron (B)	0.9[illegible]	0.0	0.5	0.1
Silica (SiO_2)	28	10	18	12
Total dissolved solids in parts per million	571	93	499	161
Percent sodium	66	38	66	42
Hardness as $CaCO_3$ in parts per million				
Total	234	41	193	82
Noncarbonate	122	2	73	11
Turbidity	140	1	140	1
Coliform in most probable number per milliliter	>7,000	0.23	7,000	0.23
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible].27		0.27	
Solid alpha	2.88		0.09	
Dissolved beta	12.39		7.58	
Solid beta	7.24		1.61	

WATER QUALITY VARIATIONS

DELTA-MENDOTA CANAL NEAR TRACY (STA. 93)

DELTA-MENDOTA CANAL NEAR MENDOTA (STA. 92)

Sampling Point The Mendota station is located in Section 19, Township 13 South, Range 15 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, about 1 mile upstream from the gates to Mendota Pool and about 2 miles north of Mendota.

Period of Record July 1952 through December 1959.

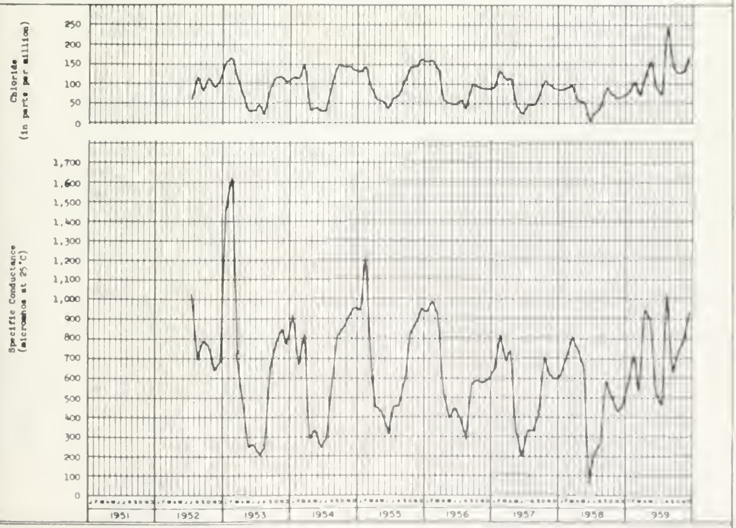
Water Quality Characteristics Past analyses show the water to be predominantly sodium chloride in character with moderate concentrations of dissolved solids, moderately hard to very hard, and normally class 1 for irrigation during the pumping season. The water, during August, is frequently class 2 for irrigation because of conductivity, chlorides, and percent sodium, but is within class 1 requirements throughout the remainder of the year. A comparison of the quality of water at Tracy station with that at Station 92 cannot effectively be made since sampling prior to September 1959 did not give consideration to the time of travel of the water in the canal.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	1,630	61.5	1,080	457
Temperature in °F	81	41	76	48
Dissolved oxygen in parts per million	11.8	6.4	10.5	7.3
Percent saturation	152	77	[illegible]	77
pH	8.5	7.0	7.8	7.[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	67	13	41	21
Magnesium (Mg)	35	4.1	26	18
Sodium (Na)	232	4.2	142	55
Potassium (K)	5.2	1.5	4.6	3.6
Carbonate (CO_3)	4	[illegible]	0.0	0.0
Bicarbonate (HCO_3)	249	28	152	88
Sulfate (SO_4)	154	22	67	40
Chloride (Cl)	245	1.8	245	70
Nitrate (NO_3)	2.[illegible]	0.6	1.4	0.8
Fluoride (F)	0.4	0.0	0.2	0.1
Boron (B)	0.82	0.0	0.4	0.1
Silica (SiO_2)	46	12	18	13
Total dissolved solids in parts per million	920	35	573	294
Percent sodium	67	30	67	49
Hardness as $CaCO_3$ in parts per million				
Total	311	21	210	[illegible]
Noncarbonate	186	0.[illegible]	88	26
Turbidity	180	0.0	85	[illegible]
Coliform in most probable number per milliliter	>7,000.	0.045	620	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.50	0.00	0.50	0.00
Solid alpha	1.6	0.00	0.27	[illegible]
Dissolved beta	22.41	0.00	12.05	0.00
Solid beta	8.1	0.00	0.28	0.00

WATER QUALITY VARIATIONS



DELTA-MENDOTA CANAL NEAR MENDOTA (STA. 92)

ITALIAN SLOUGH NEAR MOUTH (STA. 106)

Sampling Point Station 106 is located in Section 7, Township 1 South, Range 4 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at a pump house on the northwestern side of Clifton Court Tract, about 3.0 miles southeast of Byron.

Period of Record September 1952 through December 1959.

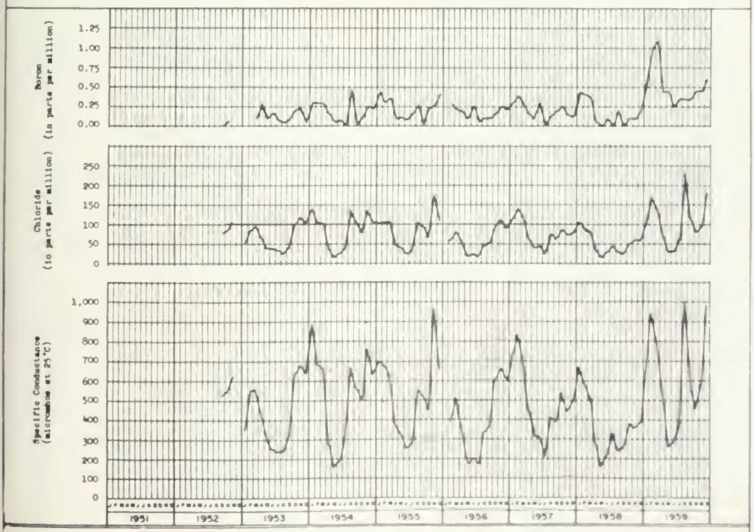
Water Quality Characteristics Italian Slough water is predominantly sodium chloride in character and slightly to very hard. The water is occasionally class 2 for irrigation due to high conductivity, chloride and boron. Italian Slough, one of several dead-end sloughs in the southwestern delta, is used as an intake channel by the Byron-Bethany Irrigation District to divert water during the irrigation season from Old River to a portion of the delta uplands area. Due to the proximity of this station to Old River, the quality of water in the slough is largely dependent upon the quality of water in Old River.

Significant Water Quality Changes In Italian Slough the August 1959 values for conductivity and chloride were 1,000 micromhos and 232 ppm, respectively. These values establish new maximums of record for conductivity and chloride concentrations in the slough. These maximums occurred at the same time that the 1959 maximums of 1,050 micromhos conductivity and 250 ppm chlorides occurred at Station 108 on Old River. They reflect the influence of Old River on the quality at Station 106.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1[illegible]	Minimum - 1[illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	84	[illegible]	[illegible]	50
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	62	[illegible]	[illegible]
pH	8.[illegible]	6.8	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	51	9.1	[illegible]	[illegible]
Magnesium (Mg)	22	[illegible]	[illegible]	[illegible]
Sodium (Na)	148	13	148	[illegible]
Potassium (K)	4.6	[illegible]	4.6	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	39	126	[illegible]
Sulfate (SO_4)	61	[illegible]	[illegible]	24
Chloride (Cl)	232	[illegible]	232	[illegible]
Nitrate (NO_3)	1.8	[illegible]	1.1	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	1.1	[illegible]	1.1	[illegible]
Silica (SiO_2)	25	3.2	17	14
Total dissolved solids in parts per million	571	88	571	157
Percent sodium	68	36	68	38
Hardness as $CaCO_3$ in parts per million				
Total	228	38	228	77
Noncarbonate	135	3	135	11
Turbidity	85	2	60	2
Coliform in most probable number per milliliter	>7,000.	0.62	>7,000	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



ITALIAN SLOUGH NEAR MOUTH (STA. 106)

INDIAN SLOUGH NEAR BRENTWOOD (STA. 107)

Sampling Point Station 107 is located in Section 22, Township 1 North, Range 3 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the East Contra Costa Irrigation District canal at Pump No. 1 on Bixler Road, at the head of Indian Slough, approximately 3.0 miles north of Byron.

Period of Record September 1952 through December 1959.

Water Quality Characteristics Past analyses show the water to be predominantly sodium bicarbonate during the winter months and sodium chloride in the summer. The water ranges from excellent to poor in quality, moderately hard to very hard, and is frequently class 2 or 3 for irrigation during the winter months due to high conductivity, chlorides and boron.

Significant Water Quality Changes Early in 1959, when the irrigation pumps were not operating, conductivity increased to 1,530 micromhos, chlorides to 235 ppm and boron to 4.9 ppm. These values reflect the mineral build-up caused by poor quality accretions from ground water into the deadend slough. Operation of irrigation pumps on the slough resulted in water from Old River flowing through the slough with a subsequent improvement in the quality of water as reflected by a decrease to 344 micromhos, 38 ppm chloride and 0.3 ppm boron. However, in August, due to the low flow conditions in streams tributary to the delta, water quality was again impaired and conductivity increased to 1,300 micromhos, chlorides to 312 ppm and boron 0.4 ppm. In the latter part of the summer, water releases from Shasta and Folsom reservoirs were increased to dilute the poor quality water in the delta. As a result, by October conductivity dropped to 705 micromhos and chlorides to 122 ppm. In December, when all irrigation pumping had ceased, conductivity again increased to 1,420 micromhos, chlorides to 208 ppm, and boron to 2.7 ppm.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum – 1959	Minimum – 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	16	5.4	[illegible]	[illegible]
Percent saturation	[illegible]	62	[illegible]	[illegible]
pH	8.4	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	6.4	[illegible]	[illegible]
Magnesium (Mg)	77	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	18	[illegible]	[illegible]
Potassium (K)	6.2	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	78	[illegible]	[illegible]	[illegible]
Chloride (Cl)	190	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	4.9	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	20	7.8	20	[illegible]
Total dissolved solids in parts per million	[illegible]	112	[illegible]	[illegible]
Percent sodium	69	38	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	570	[illegible]	[illegible]	[illegible]
Noncarbonate	275	5	[illegible]	[illegible]
Turbidity	160	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	7,000	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS

INDIAN SLOUGH NEAR BRENTWOOD (STA. 107)

Sampling Point Station 109 is located in Section 34, Township 2 North, Range 3 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the Tule Lane bridge 300 feet south of Contra Costa Canal intake gates, and near the head of Rock Slough about 2 miles northeast of Knightsen.

Period of Record September 1952 through December 1959.

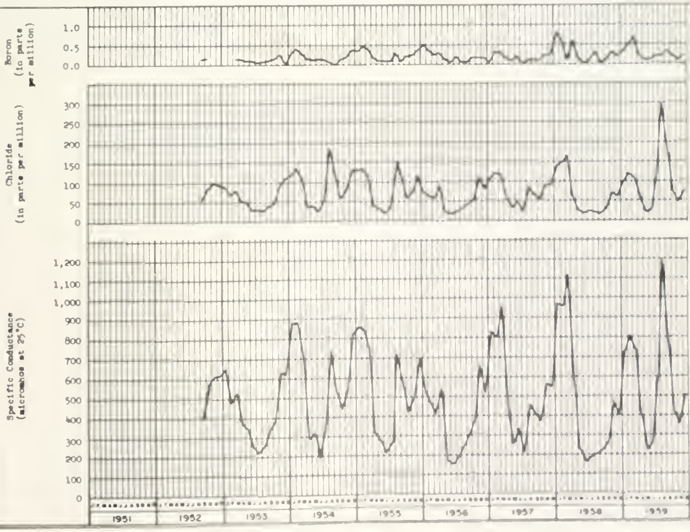
Water Quality Characteristics Rock Slough water is generally a chloride type with no predominant cation except during the irrigation season when it becomes sodium chloride. The water is generally within limits of class 1 irrigation water, suitable for domestic use from a mineral standpoint, and slightly hard to moderately hard. Significant seasonal variations in quality are noted at this station. These variations reflect the changing quality of Old River water and are probably attributable to the effects of accretions from ground water, surface drainage, and sea-water intrusion.

Significant Water Quality Changes In August 1959 maximum values for conductivity and chlorides, 1,190 micromhos and 295 ppm, respectively, established new maximums of record.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum [illegible]	Minimum [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	2.6	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	127	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	259	[illegible]	259	[illegible]
Nitrate (NO_3)	2.2	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	685	[illegible]	685	[illegible]
Percent sodium	69	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	265	[illegible]	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	70	[illegible]
Coliform in most probable number per milliliter	>7,000	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.23	[illegible]	[illegible]	
Solid alpha	1.57	[illegible]	[illegible]	
Dissolved beta	12.5	[illegible]	[illegible]	
Solid beta	[illegible]	[illegible]	[illegible]	

WATER QUALITY VARIATIONS



ROCK SLOUGH NEAR KNIGHTSEN (STA. 109)

Cosumnes River Basin. The Cosumnes River watershed lies in the central portion of the Central Valley Region. The basin contains approximately 537 square miles, all of which are classified as mountains and foothills. It is bounded by the drainage divide of the Sierra Nevada Range on the east, by the American River drainage on the north, and by the Mokelumne River drainage on the south. The Cosumnes River flows into the Mokelumne River near Thornton. The Cosumnes River at Michigan Bar has a total annual flow of approximately 374,000 acre-feet.

Prominent uses of surface water in the basin include developments devoted to recreation, irrigation, and fish and wildlife propagation and preservation. The basin's natural resources are used primarily for recreational activities such as hunting, fishing, boating, swimming, and picnicking.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

Monitoring Station	Page Number of Station Discussion
Cosumnes River at Michigan Bar	352
Cosumnes River at McConnell	354

COSUMNES RIVER AT MICHIGAN BAR (STA. 94)

Sampling Point Michigan Bar station is located in Section 36, Township 8 North, Range 8 East, Mt. Diablo Base and Meridian. The monthly water samples were collected at mid-channel from the county road bridge, at the USGS stream gaging station, 5.5 miles southwest of Latrobe and about 12 miles downstream from the confluence of North and Middle Forks.

Period of Record July 1952 through December 1959.

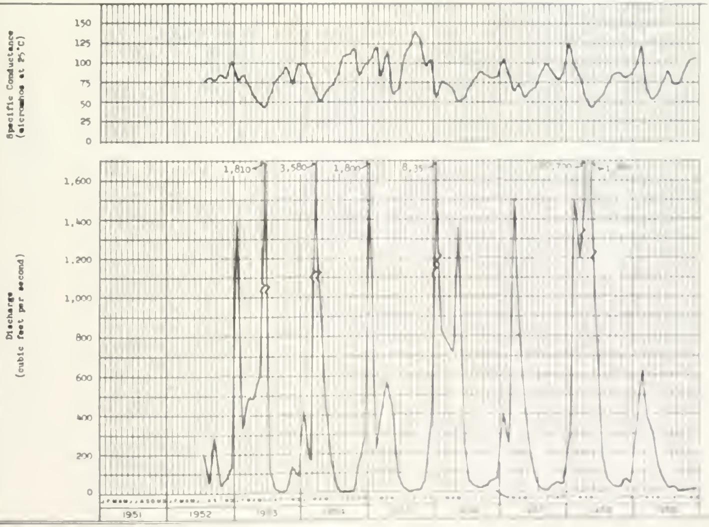
Water Quality Characteristics Past analyses of samples of this water show it to be calcium bicarbonate in character, soft, of excellent mineral quality, and suitable for all beneficial uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	139	42.2	121	53.4
Temperature in °F	86	42	86	44
Dissolved oxygen in parts per million	12.9	6.3	12.2	7.7
Percent saturation	139	79	129	[illegible]
pH	8.[illegible]	6.8	8.1	7.3
Mineral constituents in parts per million				
Calcium (Ca)	9.4	4.2	8.[illegible]	7.2
Magnesium (Mg)	6.1	[illegible]	2.9	1.[illegible]
Sodium (Na)	5.6	1.8	5.1	2.4
Potassium (K)	1.8	[illegible]	1.4	[illegible]
Carbonate (CO_3)	3	[illegible]	2	[illegible]
Bicarbonate (HCO_3)	77	16	55	27
Sulfate (SO_4)	6.7	[illegible]	3.[illegible]	1.[illegible]
Chloride (Cl)	5.2	[illegible]	5.2	1.[illegible]
Nitrate (NO_3)	1.2	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	0.0
Boron (B)	0.25	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	21	16	17	[illegible]
Total dissolved solids in parts per million	98	31	[illegible]	[illegible]
Percent sodium	27	14	23	1[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	58	18	51	2[illegible]
Noncarbonate	10	0.[illegible]	1[illegible]	[illegible]
Turbidity	300	0.2	14	[illegible]6
Coliform in most probable number per milliliter	See 1959	See 1959	[illegible],300	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha			[illegible]	
Solid alpha			[illegible]	
Dissolved beta			[illegible]	
Solid beta			[illegible]	

WATER QUALITY VARIATIONS



COSUMNES RIVER AT MICHIGAN BAR (STA. 94)

COSUMNES RIVER AT McCONNELL (STA. 94a)

Sampling Point The station is located in Section 20, Township 6 North, Range 6 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected in mid-channel from U. S. Highway 99 bridge, at the USGS gage, approximately 7.7 miles north of Galt.

Period of Record July 1958 through December 1959.

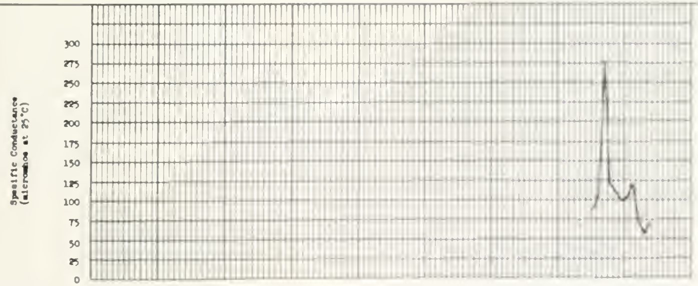
Water Quality Characteristics Past analyses show the water to be similar in quality to the upstream station at Michigan Bar, calcium bicarbonate in character, soft, and of excellent mineral quality for all beneficial uses. Only very minor increases in conductivity were noted between Station 94 at Michigan Bar and Station 94a, indicating no significant sources of degradation.

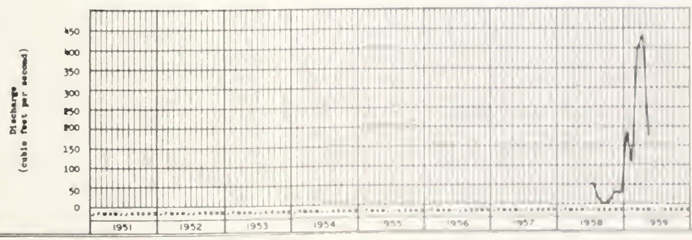
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - [illegible]	Minimum - [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	7.[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	22	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	12	[illegible]	[illegible]	[illegible]
Sodium (Na)	19	2.6	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	155	27	[illegible]	27
Sulfate (SO_4)	7.1	[illegible]	7.1	[illegible]
Chloride (Cl)	6	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	1.[illegible]	[illegible]	1.[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	55	16	[illegible]	[illegible]
Total dissolved solids in parts per million	1[illegible]8	[illegible]	78	[illegible]
Percent sodium	29	16	26	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	22	[illegible]	22
Noncarbonate	6	[illegible]	6	[illegible]
Turbidity [illegible]	12	[illegible]		[illegible]
Coliform in most probable number per milliliter	230	[illegible]23	230	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.50	[illegible]		[illegible]
Solid alpha	1.28	[illegible]		[illegible]
Dissolved beta	3.07	0.30	3.77	
Solid beta	7.75	2.[illegible]3		2.[illegible]

WATER QUALITY VARIATIONS





COSUMNES RIVER AT McCONNELL (STA. 94a)

Mokelumne River Basin. The Mokelumne River watershed lies in the central portion of the Central Valley Region. It contains about 630 square miles, approximately 626 of which are mountains and foothills. The remainder are valley and mesa lands. The river drains a portion of the western slope of the Sierra Nevada. It is bordered by the Cosumnes River drainage on the north, and Calaveras River drainage on the south. The Mokelumne River enters the delta near Thornton. At Clements the Mokelumne River has a total annual flow of approximately 780,000 acre-feet.

Approximately four square miles of the Mokelumne River drainage basin are potential agricultural lands. The most prominent uses of surface water in this basin are for recreation, power development, fish and wildlife propagation and preservation, and export by Mokelumne Aqueduct for municipal use by the East Bay Municipal Utility District. Natural resources of the basin are utilized for recreational activities such as hunting, fishing, boating, swimming and picnicking.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

MOKELUMNE RIVER NEAR LANCHA PLANA (STA. 23a)

Sampling Point Station 23a is located in Section 4, Township 4 North, Range 10 East, Mt. Diablo Base and Meridian. The monthly water samples were collected from the left bank, about 1.0 mile east of Lancha Plana, 3.0 miles downstream from Pardee Dam, and 5.0 miles upstream from Camanche Creek.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Antecedent data reveal the water to be predominantly calcium bicarbonate in character, soft, of excellent mineral quality, and suitable for all beneficial uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	108	26.6	108	39.5
Temperature in °F	67	41	60	48
Dissolved oxygen in parts per million	13.6	8.8	11.3	9.6
Percent saturation	136	82	109	[illegible]
pH	7.5	6.2	7.2	6.5
Mineral constituents in parts per million				
Calcium (Ca)	7.2	2.8	5.6	4.8
Magnesium (Mg)	2.9	0.2	2.1	[illegible]
Sodium (Na)	5.2	0.7	3.6	1.7
Potassium (K)	1.7	0.2	1.1	[illegible]
Carbonate (CO_3)	[illegible]	0.0	[illegible]	[illegible]
Bicarbonate (HCO_3)	31	10	22	15
Sulfate (SO_4)	9.6	[illegible]	9.6	3.8
Chloride (Cl)	6	[illegible]	[illegible]	1.8
Nitrate (NO_3)	0.7	[illegible]	[illegible]	[illegible]
Fluoride (F)	0.2	[illegible]	[illegible]	[illegible]
Boron (B)	0.35	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	16	6.5	13	[illegible]
Total dissolved solids in parts per million	81	21	81	[illegible]
Percent sodium	45	14	27	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	38	9	38	[illegible]
Noncarbonate	26	[illegible]	26	[illegible]
Turbidity	90	[illegible]	20	[illegible]
Coliform in most probable number per milliliter	7,000	[illegible]	500	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.20	[illegible]	0.20	[illegible]
Solid alpha	1.17	0.00	0.44	[illegible]
Dissolved beta	9.49	0.00	9.49	[illegible]
Solid beta	[illegible]	0.00	[illegible]	[illegible]

WATER QUALITY VARIATIONS

MOKELUMNE RIVER NEAR LANCHA PLANA (STA. 23a)

MOKELUMNE RIVER AT WOODBRIDGE (STA. 23)

Sampling Point Station 23 is located in Section 34, Township 4 North, Range 6 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank at a USGS gaging station about 0.4 mile downstream from the Woodbridge Irrigation District dam.

Period of Record April 1951 through December 1959.

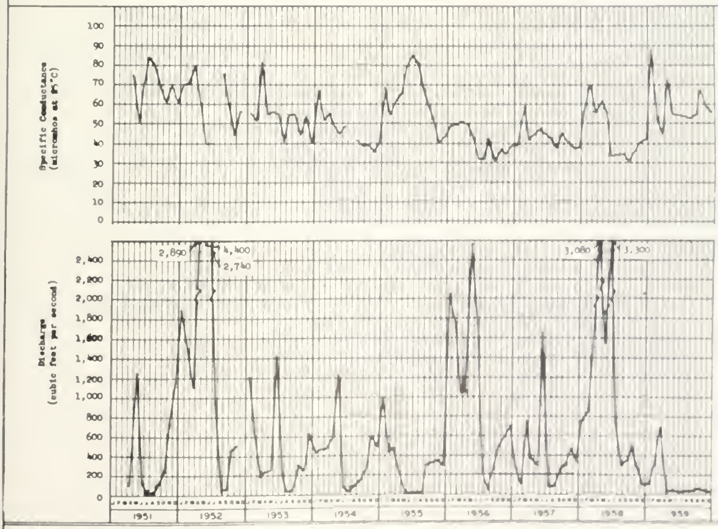
Water Quality Characteristics Past analyses show the water to be predominantly calcium bicarbonate in character, soft, and of excellent mineral quality suitable for all beneficial uses. Only a slight increase in the concentration of mineral constituents has been noted between the upstream Station 23a at Lancha Plana and Station 23.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	87.1	[illegible]	87.1	[illegible]
Temperature in °F	74	44	74	[illegible]
Dissolved oxygen in parts per million	[illegible]	7.9	[illegible]	8.2
Percent saturation	[illegible]	73	[illegible]	[illegible]
pH	7.8	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	8.4	[illegible]	7.8	6.4
Magnesium (Mg)	4.4	[illegible]	[illegible]	[illegible]
Sodium (Na)	4.9	1.4	[illegible]	2.2
Potassium (K)	[illegible]	[illegible]	0.9	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	37	[illegible]	30	[illegible]
Sulfate (SO_4)	13	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	2.4	[illegible]	2.4	[illegible]
Fluoride (F)	0.1	0.0	0.1	[illegible]
Boron (B)	[illegible]	[illegible]	0.2	[illegible]
Silica (SiO_2)	[illegible]	8.8	14	[illegible]
Total dissolved solids in parts per million	73	22	55	35
Percent sodium	36	16	28	16
Hardness as $CaCO_3$ in parts per million				
Total	32	9	32	16
Noncarbonate	14	0.0	14	[illegible]
Turbidity	70	0.0	20	[illegible]
Coliform in most probable number per milliliter	>7,000	0.62	2,400	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.41	0.00	[illegible]	[illegible]
Solid alpha	1.10	0.00	1.10	[illegible]
Dissolved beta	25.5	0.00	6.41	[illegible]
Solid beta	14.76	[illegible]	2.46	[illegible]

WATER QUALITY VARIATIONS



MOKELUMNE RIVER AT WOODBRIDGE (STA. 23)

Calaveras River Basin. The Calaveras River watershed contains approximately 395 square miles in the central portion of the Central Valley Region. The basin drains the mountainous and foothill terrain along the western slopes of the Sierra Nevada.

The Calaveras River parallels the course of the Mokelumne and Stanislaus Rivers, whose basins border it on the north and south, respectively, and flows westward into the San Joaquin River below Stockton. Total mean annual runoff, measured at Jenny Lind, has been approximately 199,000 acre-feet.

Very unproductive top soil, coupled with a relatively rugged topography, have limited development in the basin. Mining, livestock raising, and lumbering operations are carried on to a minor degree. Recreational activities have increased in recent years and are playing an increasingly important role in the economy of the basin. The most prominent uses of surface water are for recreation and irrigation diversion.

Waste discharges entering the waterways of this basin are small in volume and have not caused any impairment problems.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

Monitoring Station	Page Number of Station Discussion
Calaveras River at Jenny Lind	364
Calaveras River near Stockton	366

CALAVERAS RIVER AT JENNY LIND (STA. 16a)

Sampling Point Station 16a is located in Section 27, Township 3 North, Range 10 East, Mt. Diablo Base and Meridian. Samples were collected from the right bank, about 225 feet downstream from Milton Road bridge, and about 0.2 mile south of Jenny Lind.

Period of Record April 1951 through December 1959.

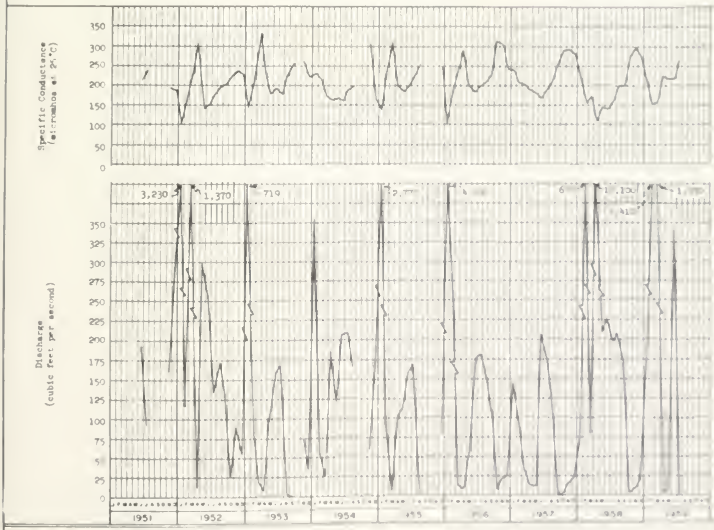
Water Quality Characteristics Past analyses show the water to be predominantly a calcium bicarbonate type, slightly to moderately hard, and class 1 for irrigation. Calaveras River water at Station 16a meets drinking water standards for mineral content and is suitable for most industrial uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - [illegible]	Minimum - [illegible]
Specific conductance (micromhos at 25°C)	332	[illegible]	304	[illegible]
Temperature in °F	82	48	82	44
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	125	44	99	[illegible]
pH	8.1	[illegible]	7.7	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	30	[illegible]	24	
Magnesium (Mg)	2[illegible]	[illegible]	[illegible]	
Sodium (Na)	[illegible]	2.4	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	2.4	
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	18[illegible]	44	[illegible]	44
Sulfate (SO_4)	15	[illegible]	[illegible]	
Chloride (Cl)	14	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	2.2	[illegible]	[illegible]	
Fluoride (F)	[illegible]	[illegible]	[illegible]	
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	23	15	[illegible]	
Total dissolved solids in parts per million	204	62	16[illegible]	[illegible]
Percent sodium	18	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	152	42	[illegible]	48
Noncarbonate	67	[illegible]	67	1
Turbidity	160	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	7,000	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	
Solid alpha	1.08	[illegible]	[illegible]	
Dissolved beta	8.28	[illegible]	[illegible]	
Solid beta	11.5	[illegible]	[illegible]	

WATER QUALITY VARIATIONS



CALAVERAS RIVER AT JENNY LIND (STA 16a)

CALAVERAS RIVER NEAR STOCKTON (STA. 16b)

Sampling Point The Stockton station is located in Section 26, Township 2 North, Range 6 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected in mid-channel from West Lane bridge.

Period of Record July 1958 through December 1959.

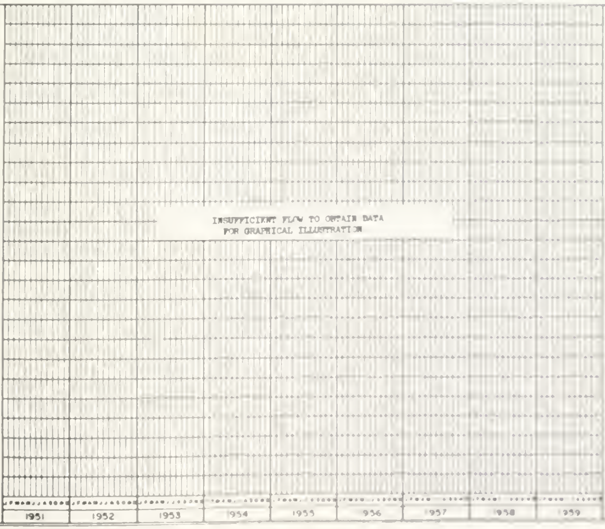
Water Quality Characteristics Samples of Calaveras River water near Stockton are predominantly calcium bicarbonate, slightly hard to moderately hard and of excellent mineral quality for irrigation. No significant difference is noted in the water quality at Station 16a at Jenny Lind and Station 16b.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	
Temperature in °F	[illegible]	[illegible]	[illegible]	
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	
Percent saturation	[illegible]	[illegible]	[illegible]	
pH	[illegible]	[illegible]	[illegible]	
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	
Magnesium (Mg)	8.8	[illegible]	[illegible]	
Sodium (Na)	7.9	[illegible]	[illegible]	
Potassium (K)	1.0	[illegible]	[illegible]	
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	
Chloride (Cl)	8.2	[illegible]	[illegible]	
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	
Fluoride (F)	[illegible]	[illegible]	[illegible]	
Boron (B)	[illegible]	[illegible]	[illegible]	
Silica (SiO_2)	20	[illegible]	[illegible]	
Total dissolved solids in parts per million	137	116	[illegible]	
Percent sodium	16	11	16	
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	78	[illegible]	
Noncarbonate	[illegible]	[illegible]	[illegible]	
Turbidity	1			
Coliform in most probable number per milliliter	See 1959	See 1959	62	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.26			
Solid alpha	0.08			
Dissolved beta	2.53			
Solid beta	4.59			

WATER QUALITY VARIATIONS



CALAVERAS RIVER NEAR STOCKTON (STA. 16b)

Tulare Lake Drainage (5d)

Tulare Lake Drainage includes the southern third of the Great Central Valley and the mountainous drainage areas coterminous to the valley on three sides. The drainage area extends approximately 130 miles southerly from the San Joaquin River to the drainage divide of the Tehachapi Mountains. Average width of the basin is 120 miles with the eastern boundary defined by the crest line of the southern portion of the Sierra Nevada, and the western boundary by the drainage divide along the coastal ranges. The Tulare Lake Drainage encompasses an area of 16,518 square miles, of which 7,773 square miles is valley and mesa and 8,745 square miles are mountains and foothills.

The valley portion of Tulare Lake Drainage consists of relatively flat-bottomed terrain bordered on three sides by gently sloping alluvial fans. Lowlands of the valley floor range in elevation from 200 feet above sea level at Tulare Lake to 500 feet along the southern end. The valley floor is broken by several ridges, such as Kettlemen Hills and Elk Hills, which have crest elevations of over 1,000 feet. Stream systems in this basin are tributary to evaporation sumps in the trough of the valley, chiefly Tulare and Buena Vista Lake beds. In the past, however, during years of heavy floods the low divide between Buena Vista and Tulare Lakes and between Tulare Lake and the San Joaquin River drainage were overtopped. During such periods, surface runoff flowed out of the Tulare Lake Drainage into the San Joaquin River.

Mountainous terrain bounding the three sides of the valley area rise from the valley floor as gently rolling foothills grading upwards to a rugged mountainous terrain. The Sierra Nevada Range on the east dominated by Mt. Whitney rises to altitudes greater than 14,000 feet. The Coast Ranges to the west rise to 6,000 feet, to the south the valley is enclosed by the coastal and Tehachapi Mountains, which rise to altitudes of about 8,000 feet.

Natural mean seasonal surface runoff for the basin is estimated to be 3,310,000 acre-feet. The principal hydrographic units are the Kings, Kern, Kaweah, and Tule Rivers, all originating in the Sierra Nevada Range. Flows are sustained by the Sierra Nevada seasonal snowpack. No streams of importance enter the valley area from the Coast Ranges or the Tehachapi Mountains. Monitored streams with the number of stations in parenthese are as follows:

Kings River Basin (3)
Kaweah River Basin (1)
Tule River Basin (1)
Kern River Basin (3)

Kings River Basin. The Kings River Basin is located in the Sierra Nevada in Fresno and Tulare Counties. The basin contains an area of 7,163 square miles, classified as mountainous foothill terrain, with 162 miles classified as valley and mesa land. It is bounded on the north by the San Joaquin River drainage divide, on the east by the Sierra crest line, on the south by the Kaweah River drainage basin, and by Tulare Lake bed on the west. During high flows a portion of the overflow from Kings River is tributary to the San Joaquin River via Fresno Slough.

The Kings River originates near the Sierra crest line at an altitude in excess of 10,000 feet. From their headwaters these streams flow eastward through Kings Canyon National Park where terrain is extremely rugged and mountainous with deeply entrenched, steep walled canyons. Mountainous area slowly gives way to a moderately rugged foothill terrain at Piedra. Kings River flows into the San Joaquin Valley at an elevation of 500 feet above sea level and terminates in Tulare Lake at an elevation of 200 feet above sea level. Total average annual runoff in the Kings River is 1,715,000 acre-feet.

In the upper reaches of the Kings River (Kings Canyon National Park) development is primarily limited to recreation. Lumbering, ranching, recreation, and hydroelectric power developments are the chief industries between the park and the base of the foothills.

Waste discharges entering the waterways of Kings River Basin above the foothill line are negligible. Impairment of quality of runoff by these waste discharges has not been serious and has not caused a discernible problem.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

Sampling Point Station 33c on Kings River is located in Section 21, Township 12 South, Range 26 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected at mid-stream, from the highway bridge located 0.8 mile downstream from the North Fork confluence.

Period of Record September 1955 through December 1959.

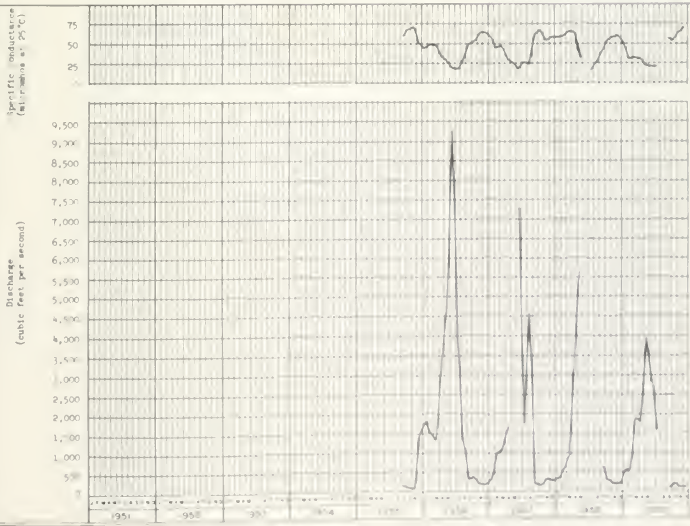
Water Quality Characteristics Antecedent data show Kings River at Station 33c to be characterized by nearly equivalent calcium, magnesium and sodium cations. Bicarbonate is the predominant anion. The mineral quality of the water is excellent, class 1 for irrigation, suitable for drinking water, and soft with a maximum recorded hardness of 39 ppm. Quality of Kings River at this station is representative of the major portion of inflow to Pine Flat Reservoir.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of [illegible]	Maximum [illegible]	Minimum [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent sodium	[illegible]	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	28	[illegible]	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	7,[illegible]	[illegible]	7,[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved beta	[illegible]	[illegible]	[illegible]	[illegible]
Solid beta	[illegible]	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS



KINGS RIVER BELOW NORTH FORK (STA. 33c)

KINGS RIVER BELOW PINE FLAT DAM (STA. 33b)

Sampling Point Pine Flat Dam station is located in Section 2, Township 13 South, Range 24 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, at the bridge located about 3,000 feet downstream from Pine Flat Dam.

Period of Record September 1955 through December 1959.

Water Quality Characteristics Water from Kings River below Pine Flat Dam is calcium bicarbonate or occasionally a calcium-sodium bicarbonate type. The water is class 1 for irrigation, meets the criteria for domestic use, and is soft (maximum recorded hardness of 24 ppm). Mineral quality at this station is qualitatively similar to that at Station 33c (Kings River below North Fork) located about 25 miles upstream.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum [illegible]	Minimum [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	32	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	5.8	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	14	[illegible]	[illegible]	2.4
Total dissolved solids in parts per million	[illegible]	[illegible]	32	[illegible]
Percent sodium	39	[illegible]	27	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	24	6	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	7,000	[illegible]	7,000	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.53	[illegible]	[illegible]	[illegible]
Solid alpha	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved beta	7.52	[illegible]	7.52	[illegible]
Solid beta	6.69	3.29	6.65	6.11

WATER QUALITY VARIATIONS

KINGS RIVER BELOW PINE FLAT DAM (STA. 33b)

KINGS RIVER BELOW PEOPLES WEIR (STA. 34)

Sampling Point Station 34 is situated in Section 1, Township 17 South, Range 22 East, Mt. Diablo Base and Meridian. The point of monthly grab sample collection is from the left bank, at the stream gage located about 1/4 mile downstream from the diversion weir, approximately 2 miles south of Kingsburg, 12 miles northeast of Hanford.

Period of Record April 1951 through December 1959.

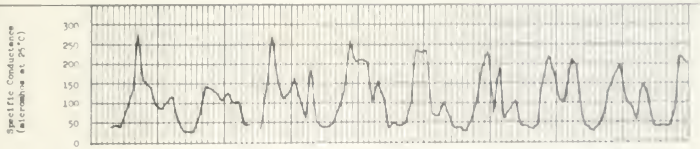
Water Quality Characteristics Water from Station 34 has bicarbonate as the predominant anion with no specific cation predominating. The water is excellent, ranges from soft to moderately hard, and meets class 1 irrigation criteria and mineral standards for drinking water. Concentrations of mineral constituents in Kings River at Station 34 are considerably higher (over 100 percent or averaging approximately 60 micromhos) than at the upstream Station 33b below Pine Flat Dam.

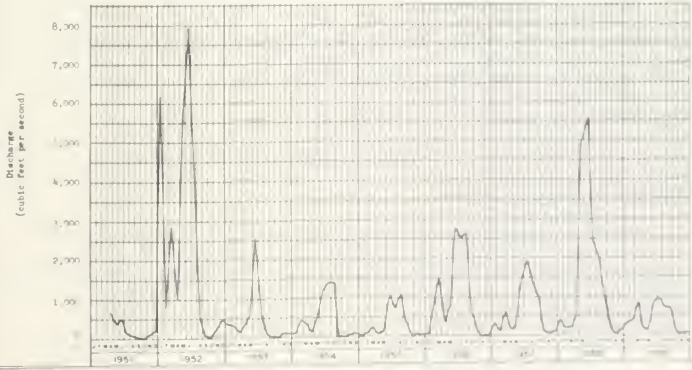
Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1957	Minimum - 1957
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	190	[illegible]	[illegible]	[illegible]
Percent sodium	[illegible]	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	[illegible]	[illegible]	[illegible]
Noncarbonate	6	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	>7 [illegible]	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved beta	[illegible]	[illegible]	[illegible]	[illegible]
Solid beta	[illegible]	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS





KINGS RIVER BELOW PEOPLES WEIR (STA. 34)

<u>Kaweah River Basin</u>. The Kaweah River Basin is located in the Sierra Nevada east of Visalia and extends from Sequoia National Park to Three Rivers in Tulare County. The basin has an area of 520 square miles of mountainous and hilly terrain. It is bounded on the north and northeast by the Kings River watershed, on the east and southeast by the Kern River drainage divide, and on the south by the Tule River drainage area. Kaweah River flows into the San Joaquin Valley at Lemon Cove where the channel splits into several distributaries which eventually drain into Tulare Lake evaporation sump.

Forks of the Kaweah River head in an extremely rugged, mountainous area with alpine peaks rising above 10,000 feet. Steep walled canyons and ravines are characteristic of the waterways in the upper reaches. Progressing downslope the topography undergoes a gradual transition to rolling foothills and broader river valleys. The Kaweah River flows out of the hydrographic unit at Three Rivers at an elevation of 800 feet above sea level. Total average annual runoff of the Kaweah River Basin is 416,000 acre-feet.

Economic activities in the Kaweah River Basin consist primarily of recreation, ranching, hydroelectric power development, and lumbering. Approximately seven miles downstream from Three Rivers, near Lemon Cove, Terminus Dam is presently under construction by the U. S. Corps of Engineers. The structure will provide flood control, irrigation, and other benefits to nearby areas.

Numerous domestic wastes discharge into the waterways of this basin, however, these are comparatively minor and have created no noticeable impairment problems.

A surface water sampling station is maintained on Kaweah River near Three Rivers to monitor quality of runoff from the basin.

Sampling Point Kaweah River water is sampled in Section 33, Township 17 South, Range 28 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, at the USGS gaging station about 2.5 miles downstream from the South Fork confluence, 3 miles southeast of Three Rivers, approximately 1/2 mile east of Cobbles Lodge.

Period of Record April 1951 through December 1959.

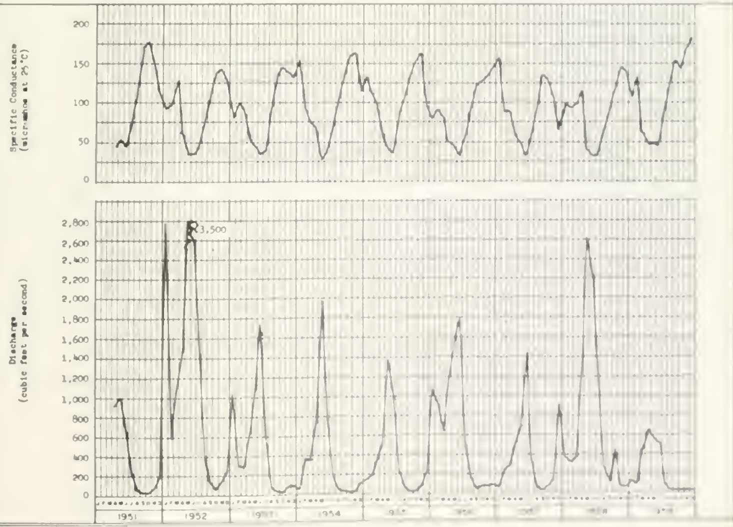
Water Quality Characteristics Water in Kaweah River at Station 35 is a calcium bicarbonate type; however, at times no cation is predominant. The water has been of excellent mineral quality, soft to slightly hard, class 1 for irrigation (with one exception) and meets drinking water criteria. In December 1953, a boron concentration of 0.56 ppm was recorded, which exceeds class 1 irrigation standards.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum [illegible]	Minimum [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	27	[illegible]	15	[illegible]
Total dissolved solids in parts per million	122	[illegible]	[illegible]	[illegible]
Percent sodium	[illegible]	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	68	[illegible]	[illegible]	[illegible]
Noncarbonate	9	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	7,000	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	[illegible]
Solid alpha	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved beta	[illegible]	[illegible]	[illegible]	[illegible]
Solid beta	21.7	[illegible]	[illegible]	[illegible]

WATER QUALITY VARIATIONS



KAWEAH RIVER NEAR THREE RIVERS (STA 35)

Tule River Basin. The Tule River Basin is located on the western slopes of the Sierra Nevada in the southern part of the Central Valley Region. The basin extends from the southern boundary of Sequoia National Park to Porterville in Tulare County and contains an area of 390 square miles. It is bounded on the north by the Kaweah River drainage divide, on the east by the Kern River watershed crest line, on the south by a drainage divide of Deer Creek, and on the west by the San Joaquin Valley. Tule River flows westward into the San Joaquin Valley and terminates at Tulare Lake sump.

The terrain along the upper reaches of the Tule River Basin is extremely rugged cut by steep-walled canyons and ravines, with mountainous ridges rising to altitudes greater than 7,000 feet. Progressing toward the San Joaquin Valley, the topography undergoes a gradual change to foothills interspersed by relatively broad river valleys. The Tule River flows out of the Sierra foothills, at an elevation of about 500 feet, into the San Joaquin Valley at Porterville. The average annual runoff of the Tule River is 140,000 acre-feet.

Activities in Tule River Basin include recreation, ranching, hydroelectric power development and limited lumbering and orcharding. The newly constructed Success Dam on the Tule River, four miles east of Porterville, provides flood control and other benefits to nearby areas.

Waste discharges are relatively minor in quantity and have not created any deleterious effects on quality of water in the basin.

A surface water sampling station is maintained on Tule River near Porterville to monitor quality of runoff from this basin.

TULE RIVER NEAR PORTERVILLE (STA. 91)

Sampling Point Prior to September 1959, Station 91 was located in Section 25, Township 21 South, Range 28 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected at mid-stream from the county road bridge, 0.1 mile downstream from the South Fork, 8.8 miles east of Porterville. In September 1959, it was necessary to move the station due to construction of Success Dam. The new location is in Section 3, Township 22 South, Range 28 East, Mt. Diablo Base and Meridian. Monthly water samples were collected at mid-stream, from Worth Bridge, about 3 miles downstream from the location described for the former sampling station.

Period of Record July 1952 through December 1959.

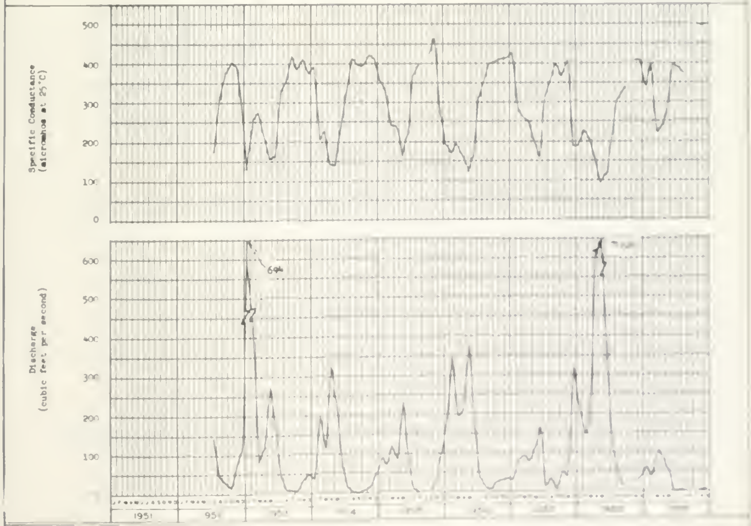
Water Quality Characteristics Tule River at Station 91 generally exhibits a calcium bicarbonate characteristic, although a calcium-sodium bicarbonate type water has been recorded on several occasions. Mineral quality of the water is excellent and meets class 1 irrigation requirements and drinking water standards. Tule River water ranges from soft to very hard with the hardness attributable to the natural leaching of soils and rocks of the watershed.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	41	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	12	[illegible]	
Magnesium (Mg)	22	1.2	[illegible]	
Sodium (Na)	[illegible]	4.4	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	284	[illegible]	284	[illegible]
Sulfate (SO_4)	7.7	[illegible]	[illegible]	
Chloride (Cl)	20	[illegible]	19	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	
Fluoride (F)	[illegible]	[illegible]	[illegible]	
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	35	16	27	
Total dissolved solids in parts per million	328	66	328	[illegible]
Percent sodium	27	18	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	35	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	80	[illegible]	85	[illegible]
Coliform in most probable number per milliliter	See 1959	See 1959	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha				
Solid alpha				
Dissolved beta				
Solid beta				

WATER QUALITY VARIATIONS



TULE RIVER NEAR PORTERVILLE (STA 91)

Kern River Basin. The Kern River Basin is located on the southwestern slope of the Sierra Nevada, and extends southwesterly from Sequoia National Park near Mt. Whitney to Bakersfield in Tulare and Kern Counties. The basin includes an area of 2,420 square miles, almost all in mountainous and hilly topography. It is bounded on the northwest by watersheds of the Kaweah and Tule Rivers and other minor streams draining into San Joaquin Valley, on the east and southeast by the Sierra Nevada crest line dominated by Mt. Whitney, and on the south by the drainage divide of minor intermittent streams draining into the San Joaquin Valley. Emerging from the foothills and into the valley area at Bakersfield, Kern River flows down a gently sloping alluvial fan to Buena Vista Lake.

Above the confluence of North Fork and South Fork Kern River, at Isabella Reservoir, the watershed is extremely rugged, rising to altitudes of about 13,000 feet. Deep, steep-walled canyons have been carved into the mountainous terrain by the Kern River. Below Isabella Reservoir the topography is moderately rugged, grading to rolling foothills toward the edge of the San Joaquin Valley. Total average annual runoff in the Kern River is about 736,000 acre-feet.

The headwater area of the Kern River in Sequoia National Park is generally inaccessible, and hence, development consists of limited recreation. Below the park, in the foothills, development consists chiefly of lumbering, ranching, hydroelectric power development, and recreation. Farming and crude oil production is the chief industry in the valley area. Isabella Dam, located about 22 miles northeast of Bakersfield on the Kern River, provides flood control and other benefits to the basin.

Waste discharges in the watershed are extremely small above the valley floor and have caused no impairment problems.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

Monitoring Station	Page Number of Station Discussion
Kern River near Kernville	388
Kern River below Isabella Dam	390
Kern River near Bakersfield	392

KERN RIVER NEAR KERNVILLE (STA. 36b)

Sampling Point Kernville station is located in Section 14, Township 23 South, Range 32 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, at the USGS stream gaging station, about 3 miles upstream from the confluence with Salmon Creek, 15 miles north of Kernville.

Period of Record September 1955 through December 1959.

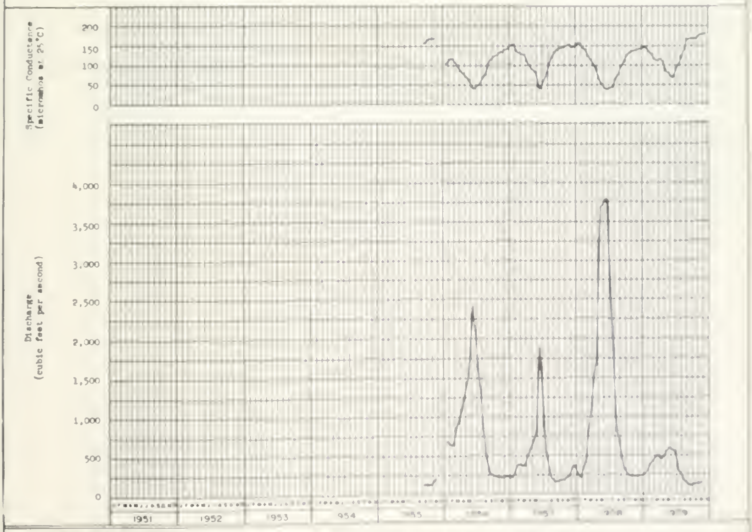
Water Quality Characteristics Kern River at Station 36b is characterized by a calcium-sodium bicarbonate type water, which is soft and relatively low in dissolved solids. The mineral quality of this water consistently meets the criteria for a class 1 irrigation supply and for drinking water.

Significant Water Quality Changes During 1959 the only significant quality change occurred in July when a boron concentration of 0.8 ppm rendered water at this station class 2 for irrigation. The reason for this relatively high boron concentration has not yet been ascertained.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - [illegible]	Minimum - [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent sodium	[illegible]	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	[illegible]	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	[illegible]	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	
Solid alpha	[illegible]	[illegible]	[illegible]	
Dissolved beta	[illegible]	[illegible]	[illegible]	
Solid beta	[illegible]	[illegible]	[illegible]	

WATER QUALITY VARIATIONS



KERN RIVER NEAR KERNVILLE (STA. 36b)

KERN RIVER BELOW ISABELLA DAM (STA. 36a)

Sampling Point Station 36a is located in Section 30, Township 26 South, Range 33 East, Mt. Diablo Base and Meridian. Monthly water samples were collected from the right bank, 500 feet downstream from the outfall tunnel of Isabella Dam.

Period of Record September 1955 through December 1959.

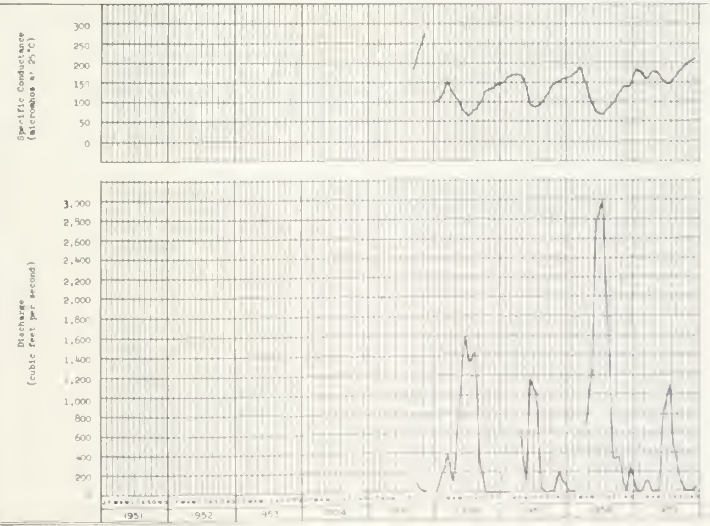
Water Quality Characteristics Water at Isabella Dam station is consistently a bicarbonate type with either calcium or calcium-sodium cations being predominant. Mineral quality of the water is excellent, soft to slightly hard, meets the criteria for class 1 irrigation use and drinking water standards. Comparison of analyses of samples from Kern River at Station 36b with those from Station 36c, located about 10 miles upstream and above Isabella Reservoir, show that in this reach there is an increase in specific conductance of from 10 to 92 micromhos. The reason for this increase has not as yet been ascertained; but it is probably attributable to the concentration of minerals caused by evaporation from Isabella Reservoir.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - [illegible]	Minimum - [illegible]
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	[illegible]	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	[illegible]	62	135	[illegible]
Percent sodium	42	[illegible]	[illegible]	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]	[illegible]	[illegible]	[illegible]
Noncarbonate	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]
Coliform in most probable number per milliliter	[illegible]	[illegible]	[illegible]	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible]	[illegible]	
Solid alpha	[illegible]	[illegible]	[illegible]	
Dissolved beta	[illegible]	[illegible]	[illegible]	
Solid beta	[illegible]	[illegible]	[illegible]	

WATER QUALITY VARIATIONS



KERN RIVER BELOW ISABELLA DAM (STA. 36a)

Station Number
11
11a
11b
12
12b
12c
12d
13
13a
13b
13c
13d
13e
14
14a
15
15a
16
16a
16b
17
17a
17d
17e
18
18a
19
20
20a
20b
21
21a
22
22a
22b
22c

Station Number
80
81
84
85
85a
87
87a
88
88a
88b
88c
88d
88e
88g
91
92
92a
93
94
94a
95a
95b
97
98
99
100
101
101a
102
103
103a
104
106
107
108
108a
108b
109

DEPARTMENT OF WATER RESOURCES 1959

Lahontan Region (No. 6)

The Lahontan Region extends from the Oregon border on the north to the southern boundary of the Mojave River Basin on the south, and comprises that area situated between the California-Nevada border to the east and the Sierra Nevada to the west. The region contains about 33,000 square miles and varies in width from less than 20 miles in the north to over 170 miles, across the Mojave Desert and Antelope Valley, in the south.

The terrain of the region is characterized by basins of interior drainage or sinks surrounded by mountain peaks. Areas classified as valley and mesa lands cover about 10,000 square miles, most of which are considered irrigable. The eastern slopes of the Sierra Nevada dominate the mountainous portions of the Lahontan Region.

The region has an estimated mean seasonal runoff of 3,177,000 acre-feet. Principal streams in the Lahontan area include the Susan, Truckee, Carson, Walker, Owens and Mojave Rivers. To provide a continuing check on the quality of surface runoff in this region, 12 sampling stations are maintained on the following surface water sources as indicated in the following tabulation. The number of sampling stations on each source is shown in parentheses.

Susan River (1)	Carson River (2)
Lake Tahoe (3)	Walker River (2)
Truckee River (2)	Mojave River (2)*

* The Mojave River is in Southern California and will be discussed in Part II of this bulletin.

Lahontan Region (No. 6)

The Lahontan Region extends from the Oregon border on the north to the southern boundary of the Mojave River Basin on the south, and comprises that area situated between the California-Nevada border to the east and the Sierra Nevada to the west. The region contains about 33,000 square miles and varies in width from less than 20 miles in the north to over 170 miles, across the Mojave Desert and Antelope Valley, in the south.

The terrain of the region is characterized by basins of interior drainage or sinks surrounded by mountain peaks. Areas classified as valley and mesa lands cover about 10,000 square miles, most of which are considered irrigable. The eastern slopes of the Sierra Nevada dominate the mountainous portions of the Lahontan Region.

The region has an estimated mean seasonal runoff of 3,177,000 acre-feet. Principal streams in the Lahontan area include the Susan, Truckee, Carson, Walker, Owens and Mojave Rivers. To provide a continuing check on the quality of surface runoff in this region, 12 sampling stations are maintained on the following surface water sources as indicated in the following tabulation. The number of sampling stations on each source is shown in parentheses.

Susan River (1)
Lake Tahoe (3)
Truckee River (2)
Carson River (2)
Walker River (2)
Mojave River (2)*

---

* The Mojave River is in Southern California and will be discussed in Part II of this bulletin.

Susan River Basin

Susan River Basin is a subbasin in the closed Honey Lake Basin located in the northeastern portion of California. The river originates on the slopes of the Sierra Nevada and flows eastward into Honey Lake Valley. Susan River watershed contains about 238 square miles and has an estimated mean seasonal runoff of 50,900 acre-feet.

Timber covered mountains and foothills comprise 157 square miles in the basin. Valley and mesa lands, some of which are also heavily forested, cover the remaining 81 square miles of watershed tributary to Susan River. Lumbering is the primary industry, followed in importance by the beef industry and agriculture devoted to the support of livestock.

Waste discharges entering the Susan River are primarily those associated with lumbermills and domestic or urban developments. Waste effluent from the City of Susanville is the only discharge in excess of 0.5 mgd entering the river. Serious impairment of water quality by waste discharges has not occurred or been reported in the Susan River.

A water quality monitoring station is maintained on Susan River at Susanville (17b) to monitor quality of runoff from the basin.

SUSAN RIVER AT SUSANVILLE (STA. 17b)

Sampling Point Station 17b is located in Section 31 of Township 30 North, Range 12 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the left bank, USGS gaging station, 0.5 mile west of Susanville, 1.1 miles upstream from Piute Creek, 24 miles above the mouth at Honey Lake.

Period of Record April 1951 through December 1959.

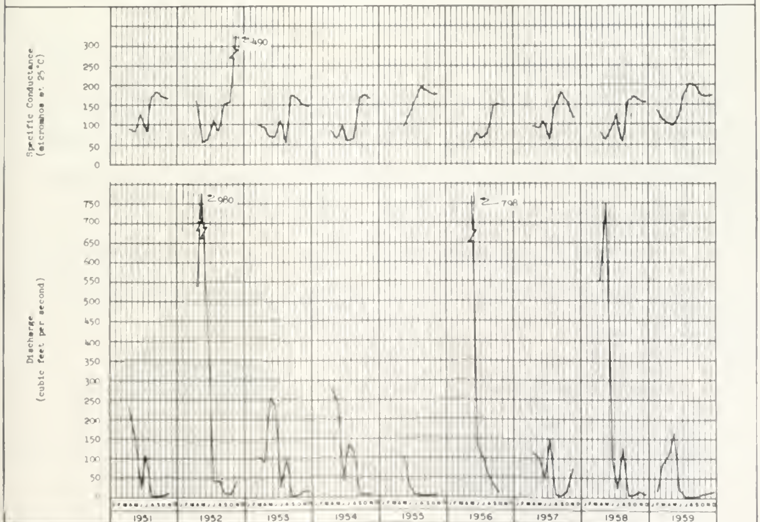
Water Quality Characteristics Past samples show water from Station 17b to be calcium-magnesium bicarbonate in character, class 1 for irrigation, varying from soft to moderately hard. Susan River water consistently meets drinking water standards. Only minor changes in water quality occur.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	55.5	201	[illegible]8.2
Temperature in °F	75	33	64	33
Dissolved oxygen in parts per million	12.1	6.6	11.9	7.3
Percent saturation	98	7[illegible]	95	76
pH	8.1	6.8	7.6	7.3
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	5.7	19	8.8
Magnesium (Mg)	16	2.[illegible]	10	4.6
Sodium (Na)	8.4	1.5	8.4	3.0
Potassium (K)	4.5	0.3	4.5	0.7
Carbonate (CO_3)	[illegible]	0.0	[illegible]	0.0
Bicarbonate (HCO_3)	238	32	134	56
Sulfate (SO_4)	2[illegible]	0.0	1.9	[illegible]
Chloride (Cl)	12	[illegible]	2.3	0.5
Nitrate (NO_3)	1[illegible]	[illegible]	[illegible].5	0.4
Fluoride (F)	[illegible].2	[illegible]	[illegible]	[illegible]
Boron (B)	0.24	[illegible]	[illegible].0	0[illegible]
Silica (SiO_2)	42	16	42	23
Total dissolved solids in parts per million	370	42	152	72
Percent sodium	20	11	19	12
Hardness as $CaCO_3$ in parts per million				
Total	120	23	93	41
Noncarbonate	2	[illegible]	2	[illegible]
Turbidity	5[illegible]	[illegible]	15	1
Coliform in most probable number per milliliter	7,000.	0.045	2,400	[illegible].06
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible].32	0.00	0.30	0.26
Solid alpha	1.65	[illegible].00	0.55	0.00
Dissolved beta	13.7	0.00	7.64	4.16
Solid beta	25.[illegible]	0.00	4.03	[illegible]

WATER QUALITY VARIATIONS



SUSAN RIVER AT SUSANVILLE (STA. 17b)

Truckee River Basin

The Truckee River drains an area near the central portion of the Lahontan Region at the "elbow-bend" in the California-Nevada border. The California portion of the river basin is predominantly alpine with 621 of the 805 square miles classed as mountainous. Mean annual runoff from the California portion of the basin exceeds 580,000 acre-feet.

Lake Tahoe, formed by the down-dropping of a fault block along the Sierran-Nevadan fault, is one of the prominent physical features of the Truckee River Basin. With a mean water surface elevation of 6,228 feet and an approximate 120 miles of shore line, it has become an internationally known recreation and vacation attraction. Valley and mountain meadow land contain 184 square miles in the California portion of the watershed. Development is primarily associated with recreation. Lumbering is carried on to a minor degree in the basin.

Waste discharged into the waterways of the area have been small in quantity; however, those entering Lake Tahoe have caused some concern as to their effect on this important body of water. A review of available data reveals that no significant impairment to the lake has been detected under present conditions.

The following tabulation presents the names of stations maintained to monitor quality of surface water in this basin and the page on which each is discussed:

Monitoring Station	Page Number of Station Discussion
Lake Tahoe at Bijou	402
Lake Tahoe at Tahoe Vista	404
Lake Tahoe at Tahoe City	406
Truckee River near Truckee	408
Truckee River near Farad	410

LAKE TAHOE AT BIJOU (STA. 39)

Sampling Point Bijou station is located on the south end of the lake in Section 33 of Township 13 North, Range 18 East, Mt. Diablo Base and Meridian. The monthly grab samples were collected from a pier in Bijou.

Period of Record April 1951 through December 1959.

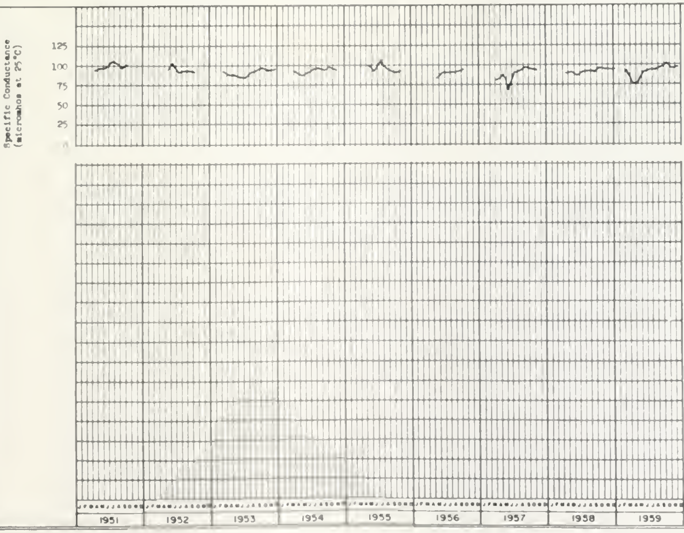
Water Quality Characteristics Lake Tahoe water is calcium bicarbonate in character, soft, and excellent for all uses. The quality is very similar to that reported at Tahoe Vista (Station 37) and Tahoe City (Station 38), with only minor variations noted. Variation in quality has been nearly imperceptible during the period of record.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	75.4
Temperature in °F	74	[illegible]	[illegible]	44
Dissolved oxygen in parts per million	[illegible]	[illegible]	9.9	7.6
Percent saturation	[illegible]	[illegible]	[illegible]	70
pH	[illegible]	6.8	7.7	7.3
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	7.6	9.4	8.4
Magnesium (Mg)	[illegible]	[illegible]	2.3	1.7
Sodium (Na)	[illegible]	4.1	[illegible]	5.2
Potassium (K)	21	[illegible]	1.9	1.7
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	0.0
Bicarbonate (HCO_3)	[illegible]	36	52	42
Sulfate (SO_4)	4.8	[illegible]	2.9	2.0
Chloride (Cl)	6	[illegible]	4.1	1.8
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	0.0
Fluoride (F)	[illegible]	[illegible]	[illegible]	0.0
Boron (B)	[illegible]	[illegible]	0.2	0.0
Silica (SiO_2)	18	8.8	13	11
Total dissolved solids in parts per million	86	45	67	51
Percent sodium	37	23	32	25
Hardness as $CaCO_3$ in parts per million				
Total	40	21	37	27
Noncarbonate	[illegible]	0.0	0.0	0.0
Turbidity	<25	0.0	15	0.3
Coliform in most probable number per milliliter	[illegible]	0.004	23.	0.045
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	0.00	0.10	[illegible]
Solid alpha	1.20	0.00	0.51	0.37
Dissolved beta	14.77	0.00	7.23	2.64
Solid beta	9.83	0.00	3.77	0.00

WATER QUALITY VARIATIONS



LAKE TAHOE AT BIJOU (STA. 39)

LAKE TAHOE AT TAHOE VISTA (STA. 37)

Sampling Point Station 37 is located in Section 14 of Township 16 North, Range 17 East, Mt. Diablo Base and Meridian. Monthly grab samples were taken from the end of a pier located on the north end of the lake 0.1 mile west of Tahoe Vista, 8 miles northeast of Tahoe City.

Period of Record April 1951 through December 1959.

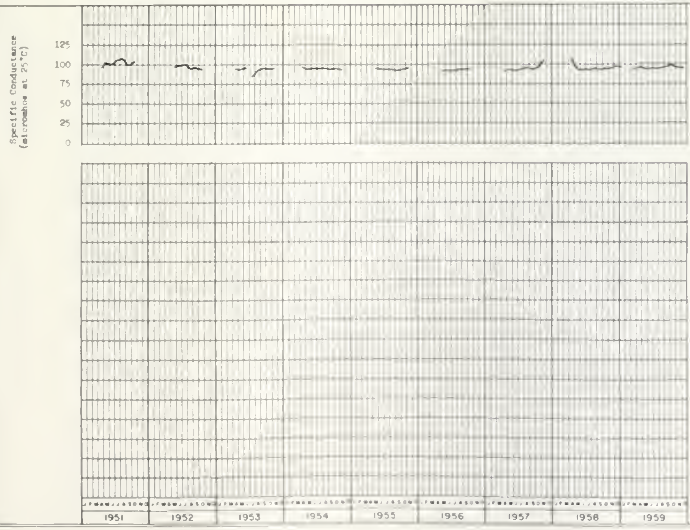
Water Quality Characteristics Antecedent data show the mineral character of the lake, at Station 37, to be calcium bicarbonate, low in concentration of all constituents, soft, of excellent mineral quality, and suitable for nearly all beneficial uses. The water varies very little in mineral quality.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	91.6
Temperature in °F	[illegible]	43	68	44
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	7.[illegible]
Percent saturation	[illegible]	[illegible]	[illegible]	81
pH	[illegible]	[illegible]	[illegible]	7.[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	9.4
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	8[illegible]	[illegible]
Potassium (K)	[illegible]	1.5	[illegible]	1.6
Carbonate (CO_3)	[illegible]	[illegible]	0[illegible]	[illegible]
Bicarbonate (HCO_3)	[illegible]	[illegible]	[illegible]	39
Sulfate (SO_4)	6[illegible]	[illegible]	2.9	2.0
Chloride (Cl)	6.[illegible]	[illegible]	4.8	1.5
Nitrate (NO_3)	.2	[illegible]	[illegible]	0.1
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	18	11	14	11
Total dissolved solids in parts per million	73	59	67	62
Percent sodium	34	22	34	[illegible]
Hardness as $CaCO_3$ in parts per million				
Total	41	[illegible]	39	32
Noncarbonate	2	[illegible]	2	[illegible]
Turbidity	<25	[illegible]	1[illegible]	0.3
Coliform in most probable number per milliliter	240.	[illegible]	23.	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.43	[illegible]	[illegible]	[illegible].00
Solid alpha	[illegible].90	[illegible].00	[illegible]	[illegible].18
Dissolved beta	13.58	0.00	3.64	1.07
Solid beta	[illegible]	[illegible].00	7.55	2.81

WATER QUALITY VARIATIONS



LAKE TAHOE AT TAHOE VISTA (STA. 37)

LAKE TAHOE AT TAHOE CITY (STA. 38)

Sampling Point Station 38 is located on the west side of Lake Tahoe in Section 7 of Township 15 North, Range 17 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected on the upstream side of the control gates at the outlet of the lake (Truckee River).

Period of Record April 1951 through December 1959.

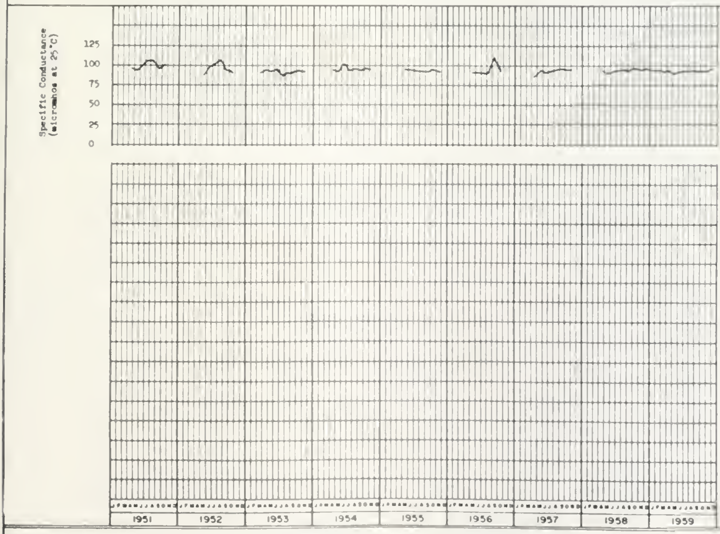
Water Quality Characteristics Water at Station 38 is calcium bicarbonate in character, soft, and in all respects very similar to the water at Tahoe Vista (Station 37). These waters are consistently excellent in quality and within mineral requirements for nearly all beneficial uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	72	[illegible]	[illegible]	[illegible]
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	[illegible]
Percent saturation	99	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible]	[illegible]	[illegible]
Magnesium (Mg)	[illegible]	[illegible]	[illegible]	[illegible]
Sodium (Na)	[illegible]	[illegible]	[illegible]	[illegible]
Potassium (K)	[illegible]	[illegible]	[illegible]	[illegible]
Carbonate (CO_3)	7	[illegible]	[illegible]	[illegible]
Bicarbonate (HCO_3)	75	44	[illegible]	[illegible]
Sulfate (SO_4)	[illegible]	[illegible]	[illegible]	[illegible]
Chloride (Cl)	6	[illegible]	[illegible]	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	[illegible]
Fluoride (F)	[illegible]	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	[illegible]	[illegible]	[illegible]	[illegible]
Total dissolved solids in parts per million	95	58	64	62
Percent sodium	36	22	31	27
Hardness as $CaCO_3$ in parts per million				
Total	43	30	38	32
Noncarbonate	2	0.0	[illegible]	[illegible]
Turbidity	25	[illegible]	10	[illegible]
Coliform in most probable number per milliliter	2,400.	[illegible]	230.	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.44	0.00	0.10	0.00
Solid alpha	[illegible]	0.00	0.37	[illegible]
Dissolved beta	14.4	0.00	5.56	[illegible]
Solid beta	8.28	[illegible]	3.55	2.67

WATER QUALITY VARIATIONS



LAKE TAHOE AT TAHOE CITY (STA. 38)

Sampling Point Station 52 is located 1.4 miles upstream from Donner Creek, 2.5 miles southwest of Truckee, in Section 28 of Township 17 North, Range 16 East, Mt. Diablo Base and Meridian. Monthly water samples were collected on the left bank, at the USGS gage, approximately 11.5 miles downstream from the outlet of Lake Tahoe.

Period of Record April 1951 through December 1959.

Water Quality Characteristics Chemical classification of water from Truckee River, at Station 52, shows the water usually to be calcium bicarbonate in character, class 1 for irrigation, and excellent for domestic and industrial use. Tributary inflow in the reach between Lake Tahoe and Truckee has no apparent effects on water quality in the Truckee River.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	125	47.2	[illegible]	54.9
Temperature in °F	6[illegible]	39	65	40
Dissolved oxygen in parts per million	12.4	7.2	10.1	7.5
Percent saturation	[illegible]	7[illegible]	10[illegible]	76
pH	>8.4	[illegible] 8	7.9	7.1
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	[illegible].9	[illegible]	6.8
Magnesium (Mg)	[illegible].9	[illegible].9	1.3	1.2
Sodium (Na)	[illegible].6	2.2	7.7	2.6
Potassium (K)	3.[illegible]	[illegible]	1.[illegible]	[illegible].8
Carbonate (CO_3)	[illegible]	[illegible]	[illegible]	0.0
Bicarbonate (HCO_3)	[illegible]	[illegible]	57	26
Sulfate (SO_4)	[illegible].9	1.[illegible]	4.8	2.[illegible]
Chloride (Cl)	[illegible]	[illegible]	4.[illegible]	0.8
Nitrate (NO_3)	[illegible]	[illegible]	[illegible].4	0.1
Fluoride (F)	[illegible].2	[illegible]	[illegible]	[illegible]
Boron (B)	[illegible].14	[illegible]	[illegible].1	[illegible]
Silica (SiO_2)	26	12	13	13
Total dissolved solids in parts per million	[illegible]	34	73	44
Percent sodium	[illegible]	18	32	19
Hardness as $CaCO_3$ in parts per million				
Total	[illegible]8	18	42	22
Noncarbonate	[illegible]	[illegible]	2	0.[illegible]
Turbidity	[illegible]	[illegible]	120	0.3
Coliform in most probable number per milliliter	>7,000	[illegible].45	230	0.[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible]	[illegible].00	0.30	0.26
Solid alpha	[illegible].94	[illegible]	0.55	0.17
Dissolved beta	16.1[illegible]	0.00	9.49	1.03
Solid beta	9.26	0.00	8.54	1.26

WATER QUALITY VARIATIONS

TRUCKEE RIVER NEAR TRUCKEE (STA. 52)

TRUCKEE RIVER NEAR FARAD (STA. 53)

Sampling Point Station 53 is located approximately 2 miles upstream from the California-Nevada state line in Section 12 of Township 18 North, Range 17 East, Mt. Diablo Base and Meridian. Monthly water samples were collected from the left bank at the USGS gage.

Period of Record April 1951 through December 1959.

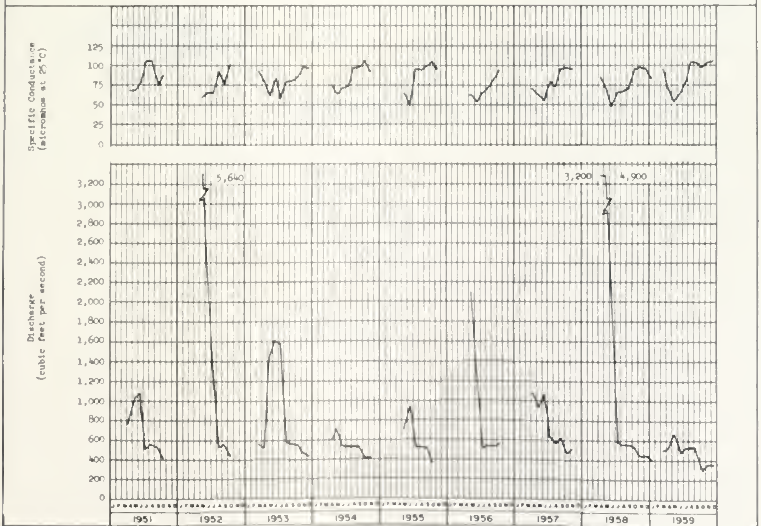
Water Quality Characteristics Analyses show water at Station 53 to be bicarbonate in type, generally with no predominant cation, although during periods of high runoff the water becomes calcium bicarbonate in character. The water is class 1 for irrigation, soft, and meets drinking water requirements for mineral content. Very little change is noted between Station 52 (near Truckee) and Station 53. In some instances the quality improves slightly in this reach of the river due to the excellent quality of tributary inflow.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	[illegible]	[illegible]	[illegible]	[illegible]
Temperature in °F	[illegible]	34	[illegible]	38
Dissolved oxygen in parts per million	[illegible]	[illegible]	[illegible]	7.8
Percent saturation	[illegible]	[illegible]	[illegible]	[illegible]
pH	8.2	[illegible]	[illegible]	7.3
Mineral constituents in parts per million				
Calcium (Ca)	12	[illegible]	11	5.8
Magnesium (Mg)	[illegible]	[illegible]	2.1	2.1
Sodium (Na)	[illegible]	2.4	9.4	2.8
Potassium (K)	[illegible]	[illegible]	1.2	[illegible]
Carbonate (CO_3)	[illegible]	[illegible]	0.0	[illegible]
Bicarbonate (HCO_3)	[illegible]	25	62	28
Sulfate (SO_4)	4.8	0.0	4.8	[illegible]
Chloride (Cl)	[illegible]	0.0	5.2	[illegible]
Nitrate (NO_3)	[illegible]	[illegible]	[illegible]	0.1
Fluoride (F)	[illegible]	[illegible]	0.0	0.0
Boron (B)	[illegible]	[illegible]	[illegible]	[illegible]
Silica (SiO_2)	22	13	16	13
Total dissolved solids in parts per million	81	37	81	46
Percent sodium	34	17	34	18
Hardness as $CaCO_3$ in parts per million				
Total	44	18	39	23
Noncarbonate	1	0.0	1	0.0
Turbidity	50	0.3	50	0.3
Coliform in most probable number per milliliter	>7,000.	0.06	2,400.	[illegible]
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.32	0.00	0.30	0.00
Solid alpha	[illegible]	0.00	0.44	0.27
Dissolved beta	8.85	0.00	6.37	2.76
Solid beta	7.78	0.00	7.78	3.09

WATER QUALITY VARIATIONS



TRUCKEE RIVER NEAR FARAD (STA. 53)

Carson River Basin

The Carson River Basin drains an area in California of 449 square miles in the central portion of the Lahontan Region. The Carson River system originates in the Sierra Nevada and flows eastward into the State of Nevada. The California watershed of the Carson River is classified as mountainous and foothill terrain. Annual natural mean runoff from the California portion of the basin is about 389,300 acre-feet.

The economy in the basin is based on livestock raising, supplemented by recreational activities. There are no significant waste discharges entering the river system.

The following tabulation presents the names of stations maintained to monitor quality of surface waters in the basin and the page on which each is discussed:

CARSON RIVER, WEST FORK AT WOODFORDS (STA. 115a)

Sampling Point The Woodfords station is located in Section 34 of Township 11 North, Range 19 East, Mt. Diablo Base and Meridian. Samples were collected monthly at the USGS gage on the left bank 3-1/2 miles downstream from Willow Creek, 0.8 mile west of Woodfords.

Period of Record August 1958 tnrough December 1959.

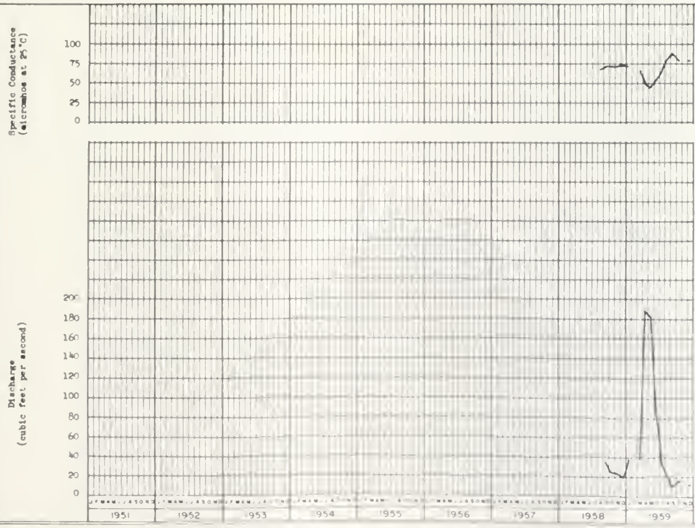
Water Quality Characteristics Past analyses show the water at Station 115a to be characteristically calcium bicarbonate, soft, class 1 for irrigation, and within drinking water requirements for mineral content. Total radioactivity reached 15.16 $\mu\mu c/l$ in September 1959, which is slightly higher than is usually encountered in surface streams, but below the recommended safe limit.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	87.2	45.5	87.2	45.5
Temperature in °F	64	34	60	34
Dissolved oxygen in parts per million	11.6	7.6	11.6	8.2
Percent saturation	100	78	100	78
pH	8.0	7.1	7.8	7.1
Mineral constituents in parts per million				
Calcium (Ca)	10	6.0	10	6.0
Magnesium (Mg)	2.9	0.9	2.7	0.9
Sodium (Na)	5.4	1.9	5.4	1.9
Potassium (K)	1.8	0.6	1.8	0.6
Carbonate (CO_3)	0.0	0.0	0.0	0.0
Bicarbonate (HCO_3)	51	25	51	25
Sulfate (SO_4)	6.0	0.0	6.0	0.0
Chloride (Cl)	2.5	0.5	2.5	0.5
Nitrate (NO_3)	1.5	0.0	1.5	0.0
Fluoride (F)	0.1	0.0	0.1	0.0
Boron (B)	0.1	0.0	0.1	0.0
Silica (SiO_2)	24	10	24	10
Total dissolved solids in parts per million	85	36	85	36
Percent sodium	30	13	30	13
Hardness as $CaCO_3$ in parts per million				
Total	34	18	34	18
Noncarbonate	0.0	0.0	0.0	0.0
Turbidity	10	0.5	10	0.5
Coliform in most probable number per milliliter	230.	0.13	230.	0.13
Radioactivity in micro-micro curies per liter				
Dissolved alpha	1.36	0.00	0.33	0.00
Solid alpha	0.54	0.00	0.54	0.00
Dissolved beta	8.79	4.16	8.79	4.16
Solid beta	6.67	0.96	6.04	0.96

WATER QUALITY VARIATIONS



CARSON RIVER, WEST FORK AT WOODFORDS (STA. 115a)

Sampling Point Station 115 is located in Section 27 of Township 10 North, Range 20 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected in mid-stream, from State Highway 4 bridge, about 2.5 miles south of Markleeville.

Period of Record September 1958 through December 1959.

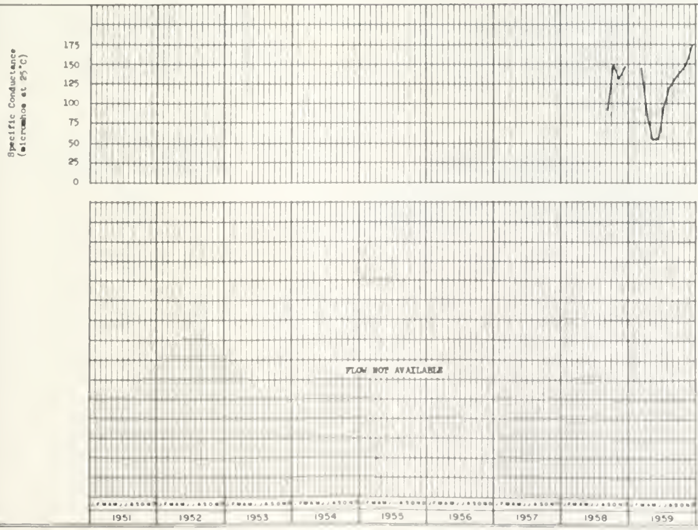
Water Quality Characteristics The water is calcium bicarbonate in character, soft to slightly hard, class 1 for irrigation use, within drinking water requirements for mineral content and suitable for all but the most exacting industrial uses.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	174	54.4	174	54.4
Temperature in °F	64	33	64	[illegible]
Dissolved oxygen in parts per million	11.7	8.2	11.7	8.2
Percent saturation	92	78	92	78
pH	[illegible]	[illegible]	[illegible]	7.3
Mineral constituents in parts per million				
Calcium (Ca)	[illegible]	5.2	16	5.2
Magnesium (Mg)	8.3	0.7	8.3	0.7
Sodium (Na)	12	3.4	12	3.4
Potassium (K)	2.5	0.9	2.5	0.9
Carbonate (CO_3)	[illegible]	0.0	[illegible]	[illegible]
Bicarbonate (HCO_3)	78	27	78	27
Sulfate (SO_4)	17	2.9	17	3.8
Chloride (Cl)	7.2	0.8	7.2	0.8
Nitrate (NO_3)	0.6	[illegible]	0.6	[illegible]
Fluoride (F)	0.2	[illegible]	0.2	[illegible]
Boron (B)	[illegible]	[illegible]	0.2	[illegible]
Silica (SiO_2)	28	12	28	12
Total dissolved solids in parts per million	132	42	132	42
Percent sodium	30	20	30	21
Hardness as $CaCO_3$ in parts per million				
Total	62	19	62	19
Noncarbonate	3	0.0	[illegible]	0.0
Turbidity	10	3	4	3
Coliform in most probable number per milliliter	230.	0.13	230.	0.13
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.17	0.00		0.00
Solid alpha	0.43	0.42	0.43	
Dissolved beta	3.38	0.84		0.84
Solid beta	8.11	2.81		2.81

WATER QUALITY VARIATIONS



CARSON RIVER, EAST FORK NEAR MARKLEEVILLE (STA. 115)

Walker River Basin

Walker River Basin encompasses the northern section of Mono County in the central part of the Lahontan Region. The California portion of this basin includes about 910 square miles along the eastern slopes of the Sierra Nevada. Estimated mean annual runoff in this portion of the basin is 484,000 acre-feet.

The terrain of the Walker River watershed is predominantly mountainous with only 61 square miles in California classified as valley and mesa lands. Livestock raising, the production of winter feed, and recreation sustain the existing economy of the basin.

There are no significant waste discharges entering the waterways of the basin. Quality impairment of runoff from the watershed area by waste discharges has been negligible.

The following tabulation presents the names of stations maintained to monitor quality of surface water in the basin and the page on which each is discussed:

Monitoring Station	Page Number of Station Discussion
Walker River, West near Coleville	420
Walker River, East near Bridgeport	422

WALKER RIVER, WEST NEAR COLEVILLE (STA. 116)

Sampling Point Station 116 is located in Section 9 of Township 6 North, Range 23 East, Mt. Diablo Base and Meridian. Monthly water samples were collected from the left bank 300 feet downstream from U. S. Highway 395 bridge, 700 feet downstream from East Fork, 500 feet downstream from USGS gage, 13 miles southeast of Coleville.

Period of Record August 1958 through December 1959.

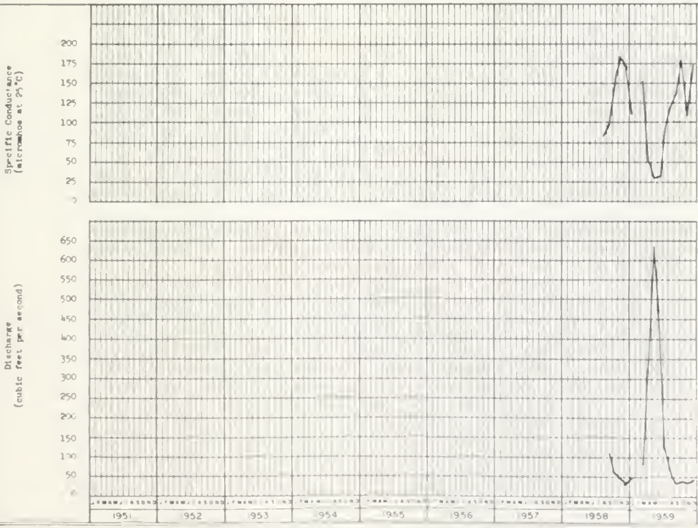
Water Quality Characteristics Analyses of West Walker River indicate a water generally bicarbonate in type with no predominant cation, class 1 for irrigation, soft and within drinking water requirements for mineral content. However, during months of higher flows this water was calcium bicarbonate in character, with calcium receding in prominence in months when surface runoff diminished.

Significant Water Quality Changes None.

WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	185	31 3	180	31 3
Temperature in °F	67	33	67	33
Dissolved oxygen in parts per million	11.6	7.0	11.6	7 [illegible]
Percent saturation	104	70	104	76
pH	8.2	7.3	8.2	7 3
Mineral constituents in parts per million				
Calcium (Ca)	17	4.2	17	4.2
Magnesium (Mg)	4.[illegible]	0.2	4.3	[illegible].2
Sodium (Na)	22	1.7	22	1 7
Potassium (K)	2.1	[illegible].3	2.1	0.3
Carbonate (CO_3)	[illegible]	0.[illegible]	0.[illegible]	0.0
Bicarbonate (HCO_3)	88	17	88	17
Sulfate (SO_4)	13	0.[illegible]	11	[illegible]
Chloride (Cl)	7.5	0.2	7.0	0 2
Nitrate (NO_3)	[illegible].9	0.0	0.9	[illegible]
Fluoride (F)	0.2	0.0	0.2	[illegible]
Boron (B)	0.3	0.0	0.3	[illegible]
Silica (SiO_2)	19	5.1	19	5.1
Total dissolved solids in parts per million	119	24	118	24
Percent sodium	52	14	52	14
Hardness as $CaCO_3$ in parts per million				
Total	56	12	56	12
Noncarbonate	0.[illegible]	0.0	0.0	[illegible].0
Turbidity	15	1	15	1
Coliform in most probable number per milliliter	620.	<0.045	620.	<0 045
Radioactivity in micro-micro curies per liter				
Dissolved alpha	[illegible].20	0.00	0.20	0.17
Solid alpha	1.36	0.08	0.26	0.08
Dissolved beta	4.16	0.64	4.16	0.64
Solid beta	6.54	0.00	6.54	0.00

WATER QUALITY VARIATIONS



WALKER RIVER, WEST NEAR COLEVILLE (STA. 116)

WALKER RIVER, EAST NEAR BRIDGEPORT (STA. 116a)

Sampling Point Station 116a is located in Section 34 of Township 6 North, Range 25 East, Mt. Diablo Base and Meridian. Monthly grab samples were collected from the right bank, 500 feet downstream from Bridgeport Reservoir and 5 miles north of Bridgeport.

Period of Record August 1958 through December 1959.

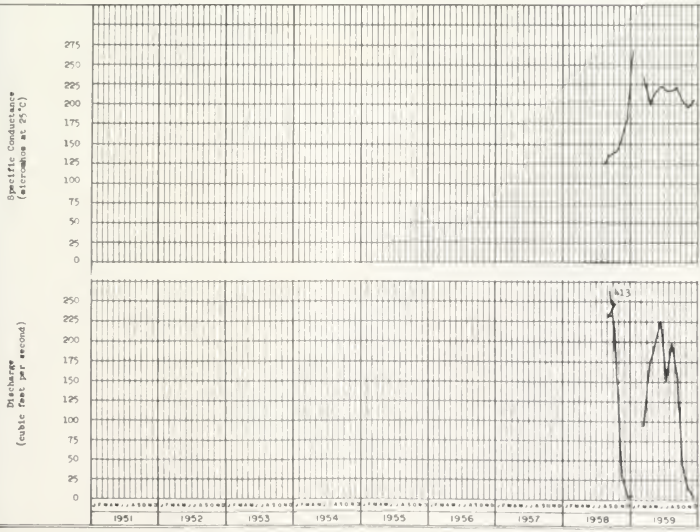
Water Quality Characteristics During periods of high flow, the water is calcium bicarbonate in character, class 1 for irrigation, and meets drinking water standards for mineral content. During low flow conditions the water becomes bicarbonate in type with no predominant cation.

Significant Water Quality Changes None.

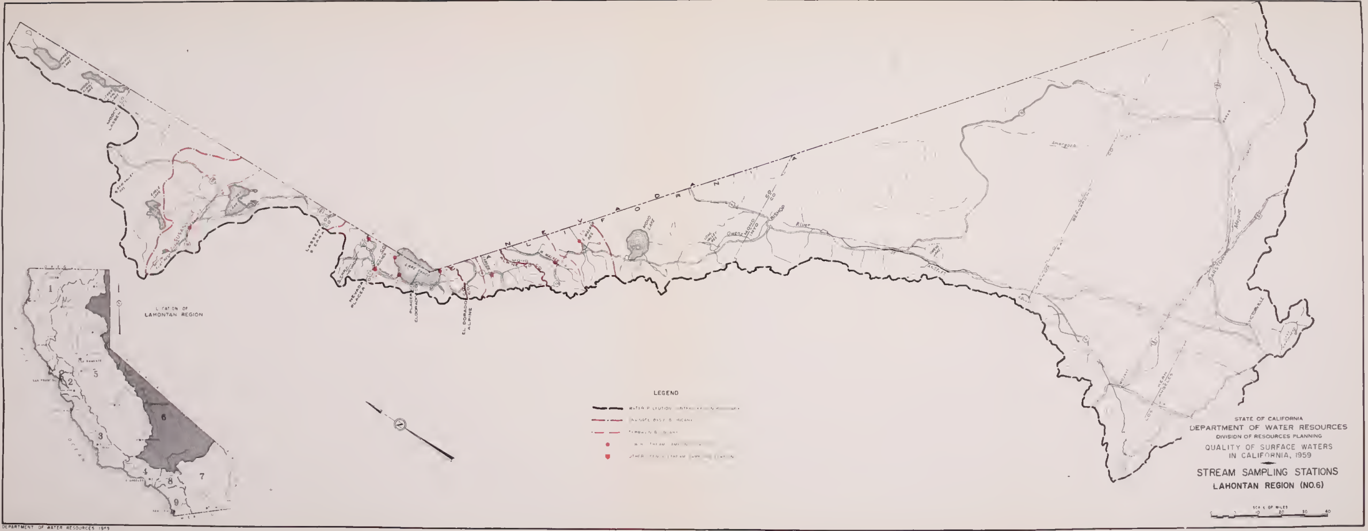
WATER QUALITY RANGES

Item	Maximum of Record	Minimum of Record	Maximum - 1959	Minimum - 1959
Specific conductance (micromhos at 25°C)	268	12[illegible]	268	195
Temperature in °F	70	4[illegible]	70	47
Dissolved oxygen in parts per million	10.9	6.6	10.9	6.6
Percent saturation	109	69	109	69
pH	8.5	7.2	8.1	7.3
Mineral constituents in parts per million				
Calcium (Ca)	26	7.2	26	22
Magnesium (Mg)	8.[illegible]	[illegible].4	4.9	[illegible].4
Sodium (Na)	30	7.3	3[illegible]	14
Potassium (K)	5.4	1.9	[illegible].4	3.2
Carbonate (CO_3)	6	[illegible]	6	[illegible]
Bicarbonate (HCO_3)	124	67	124	92
Sulfate (SO_4)	36	0.[illegible]	36	0.[illegible]
Chloride (Cl)	7.5	[illegible].8	7.5	1.5
Nitrate (NO_3)	2.0	0.0	1.8	[illegible].0
Fluoride (F)	0.6	[illegible].1	0.6	[illegible].1
Boron (B)	0.2	0.0	0.2	0.0
Silica (SiO_2)	28	12	28	16
Total dissolved solids in parts per million	187	80	187	124
Percent sodium	43	24	43	27
Hardness as $CaCO_3$ in parts per million				
Total	82	45	82	59
Noncarbonate	0.[illegible]	0.0	0.0	[illegible]
Turbidity	60	2	60	2
Coliform in most probable number per milliliter	2,400.	<0.045	2,400	<0.045
Radioactivity in micro-micro curies per liter				
Dissolved alpha	0.42	0.33		0.33
Solid alpha	[illegible].33	[illegible].00	0.33	
Dissolved beta	9.54	0.36		0.36
Solid beta	3.60	0.00		0.00

WATER QUALITY VARIATIONS



WALKER RIVER, EAST NEAR BRIDGEPORT (STA. 116a)


LOCATION OF
LAHONTAN REGION
LEGEND
MONO LAKE
BISHOP
Owens
River
Amargosa
BARSTOW
VICTORVILLE
Mojave
EL DORADO
ALPINE
NEVADA
PLACER
LASSEN
SIERRA
LAKE TAHOE
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF RESOURCES PLANNING
QUALITY OF SURFACE WATERS
IN CALIFORNIA, 1959
STREAM SAMPLING STATIONS
LAHONTAN REGION (NO.6)
SCALE OF MILES
0 10 20 30 40

SURFACE WATER QUALITY, OTHER AGENCIES' MONITORING PROGRAM

One objective of this bulletin is to present all available data of a continuous and reliable nature on quality of surface waters in California. Several agencies, not under the administration of the State of California, Department of Water Resources, have surface water quality monitoring programs comparable to the department's. Mineral analyses of samples collected from surface waters in California under other agencies' programs are presented in Appendix B of this bulletin.

To supplement analyses of other agencies a brief description of their sampling stations and, when known, period of record, are included in the following alphabetical listing:

AMERICAN RIVER AT FAIR OAKS (STA. 22d)

Sampling Point Station 22d is located in Section 13 of Township 9 North, Range 6 East, Mt. Diablo Base and Meridian. Samples were collected 1,000 feet below Old Fair Oaks Bridge, 2.4 miles east of Fair Oaks, 0.4 mile downstream from Nimbus Dam. Samples were collected quarterly and analyzed by the U. S. Bureau of Reclamation.

Period of Record January 1938 through October 1959.

CACHE SLOUGH BELOW LINDSEY SLOUGH (STA. 110a)

Sampling Point Station 110a is located in Section 31, Township 5 North, Range 3 East, Mt. Diablo Base and Meridian. Samples were collected at the surface, at Liberty Island Ferry, about 0.5 mile downstream from Lindsey Slough, 6 miles north of Rio Vista. Samples were collected quarterly, usually in January, April, July, and October, and analyzed by the U. S. Bureau of Reclamation.

Period of Record April 1952 through October 1959.

SURFACE WATER QUALITY, OTHER AGENCIES' MONITORING PROGRAM

One objective of this bulletin is to present all available data of a continuous and reliable nature on quality of surface waters in California. Several agencies, not under the administration of the State of California, Department of Water Resources, have surface water quality monitoring programs comparable to the department's. Mineral analyses of samples collected from surface waters in California under other agencies' programs are presented in Appendix B of this bulletin.

To supplement analyses of other agencies a brief description of their sampling stations and, when known, period of record, are included in the following alphabetical listing:

AMERICAN RIVER AT FAIR OAKS (STA. 22d)

Sampling Point Station 22d is located in Section 13 of Township 9 North, Range 6 East, Mt. Diablo Base and Meridian. Samples were collected 1,000 feet below Old Fair Oaks Bridge, 2.4 miles east of Fair Oaks, 0.4 mile downstream from Nimbus Dam. Samples were collected quarterly and analyzed by the U. S. Bureau of Reclamation.

Period of Record January 1938 through October 1959.

CACHE SLOUGH BELOW LINDSEY SLOUGH (STA. 110a)

Sampling Point Station 110a is located in Section 31, Township 5 North, Range 3 East, Mt. Diablo Base and Meridian. Samples were collected at the surface, at Liberty Island Ferry, about 0.5 mile downstream from Lindsey Slough, 6 miles north of Rio Vista. Samples were collected quarterly, usually in January, April, July, and October, and analyzed by the U. S. Bureau of Reclamation.

Period of Record April 1952 through October 1959.

CARQUINEZ STRAIT AT MARTINEZ (STA. 28a)

Sampling Point The Martinez station is located in Section 13, Township 2 North, Range 3 West, Mt. Diablo Base and Meridian. Samples were collected from the left bank at Benicia-Martinez ferry slip. A U. S. Bureau of Reclamation continuous salinity recorder is located at the sampling point. Monthly samples were collected and analyzed by the U. S. Bureau of Reclamation when the salinity recorder was operating.

Period of Record March 1955 through December 1959.

CONTRA COSTA CANAL AT FIRST PUMP LIFT (STA. 109a)

Sampling Point The station is located in Section 25, Township 2 North, Range 2 East, Mt. Diablo Base and Meridian. The samples were collected at the discharge of the first pump lift of Contra Costa Canal approximately 0.5 mile southeast of Oakley. Monthly samples were collected and analyzed by the U. S. Bureau of Reclamation.

Period of Record January 1955 through December 1959.

DUTCH SLOUGH AT FARRAR PARK BRIDGE (STA. 108b)

Sampling Point Farrar Park Bridge station is located in Section 22, Township 2 North, Range 3 East, Mt. Diablo Base and Meridian. Samples were collected at Farrar Park Bridge (Bethel Island Bridge) about 4 miles east of Oakley. A U. S. Bureau of Reclamation continuous salinity recorder is located at the sampling point. Monthly samples were collected and analyzed by the U. S. Bureau of Reclamation when the salinity recorder was in operation.

Period of Record May 1955 through December 1959.

FALSE RIVER AT WEBB PUMP (STA. 112a)

Sampling Point The station is located in Section 36, Township 3 North, Range 3 East, Mt. Diablo Base and Meridian. Samples were collected on the south side of Webb Tract, approximately 10 miles northeast of Antioch. A U. S. Bureau of Reclamation continuous salinity recorder is located at this site. Monthly samples were collected and analyzed by the U. S. Bureau of Reclamation.

Period of Record May 1955 through December 1959.

MOKELUMNE RIVER BELOW COSUMNES RIVER (STA. 23b)

Sampling Point The Cosumnes River station is located in Section 29, Township 5 North, Range 5 East, Mt. Diablo Base and Meridian. Samples were collected below the confluence of the Cosumnes and Mokelumne Rivers about 2 miles north of Thornton. The U. S. Bureau of Reclamation collected and analyzed monthly samples from this station during periods when the Delta Cross Channel gates are open.

Period of Record June 1952 through December 1959, except for 1956.

MOKELUMNE RIVER BELOW GEORGIANA SLOUGH (STA. 23c)

Sampling Point The station is located in Section 7, Township 3 North, Range 4 East, Mt. Diablo Base and Meridian. Samples were collected and analyzed monthly by the U. S. Bureau of Reclamation during periods when the Delta Cross Channel gates are open below the confluence of Georgiana Slough, near State Highway 12 bridge crossing approximately 3 miles east of Isleton.

Period of Record May 1952 through December 1959, except for 1956.

OLD RIVER AT HOLLAND TRACT (STA. 108a)

Sampling Point The station is located in Section 19, Township 2 North, Range 4 East, Mt. Diablo Base and Meridian. Samples were collected from the left bank on the east side of Holland Tract about 5 miles northeast of Knightsen. A U. S. Bureau of Reclamation continuous salinity recorder is located at the sampling point. Monthly samples were collected and analyzed by the U. S. Bureau of Reclamation when the salinity recorder is operating.

Period of Record March 1952 through December 1959.

SACRAMENTO RIVER NEAR MALLARD SLOUGH (STA. 15c)

Sampling Point Station 15c is located in Section 5, Township 2 North, Range 1 East, Mt. Diablo Base and Meridian. Samples were taken from the left bank and at Pacific Gas and Electric Company dock at Pittsburg. A U. S. Bureau of Reclamation continuous salinity recorder is located at this sampling point. Samples were collected and analyzed by the U. S. Bureau of Reclamation when the salinity recorder was operating.

Period of Record March 1955 through December 1959.

SACRAMENTO RIVER AT SNODGRASS SLOUGH (STA. 97)

Sampling Point The station is located in Section 22, Township 6 North, Range 4 East, Mt. Diablo Base and Meridian. Samples were taken from the left bank at the structure housing a U. S. Bureau of Reclamation continuous salinity recorder, at Greens Landing approximately 2 miles northeast of Courtland. Monthly samples were collected and analyzed by the U. S. Bureau of Reclamation.

Period of Record June 1938 through December 1959.

SACRAMENTO RIVER AT TOLAND LANDING (STA. 15a)

Sampling Point Station 15a is located in Section 21, Township 3 North, Range 2 East, Mt. Diablo Base and Meridian. The samples were collected from the right bank at the structure housing a U. S. Bureau of Reclamation continuous salinity recorder, approximately 6 miles downstream from Rio Vista. Samples were collected and analyzed monthly by the U. S. Bureau of Reclamation when the salinity recorder was operating.

Period of Record July 1952 through December 1959.

SAN JOAQUIN RIVER AT BRANDT BRIDGE (STA. 101a)

Sampling Point Station 101a is located in Section 9, Township 1 North, Range 6 East, Mt. Diablo Base and Meridian. Samples were collected at the tide stage recorder on Brandt Bridge approximately 7.0 miles south of Stockton. Samples were collected every three months and analyzed by the U. S. Bureau of Reclamation.

Period of Record August 1940 through June 1945; March 1948 through December 1955; and March 1957 through December 1959.

SAN JOAQUIN RIVER AT CROWS LANDING BRIDGE (STA. 26b)

Sampling Point Station 26b is located in Section 7 of Township 6 South, Range 9 East, Mt. Diablo Base and Meridian. Samples were collected at Crows Landing Bridge 4.5 miles northeast of Crows Landing. Monthly samples were collected and analyzed by the U. S. Bureau of Reclamation.

Period of Record June 1952 through December 1959.

SAN JOAQUIN RIVER NEAR DOS PALOS (STA. 25a)

Sampling Point The station is located in Section 12 of Township 11 South, Range 13 East, Mt. Diablo Base and Meridian. Samples were collected about

0.7 mile downstream from the head of Temple Slough and 7 miles east of Dos Palos. Samples were collected and analyzed monthly by the U. S. Bureau of Reclamation.

Period of Record September 1938 through December 1959.

SAN JOAQUIN RIVER AT JERSEY POINT (STA. 28b)

Sampling Point The station is located in Section 6, Township 2 North, Range 3 East, Mt. Diablo Base and Meridian. Samples were collected from the left bank on the northern portion of Jersey Island approximately 9 miles northeast of Antioch. Monthly samples were collected and analyzed by the U. S. Bureau of Reclamation when the salinity recorder located at this site is operating.

Period of Record July 1952 through December 1959.

SAN JOAQUIN RIVER ABOVE MERCED RIVER (STA. 30a)

Sampling Point Station 30a is located in Section 3 of Township 7 South, Range 9 East, Mt. Diablo Base and Meridian. Samples were collected 0.2 mile upstream from Hills Ferry Bridge, 0.1 mile upstream from the mouth of the Merced River 2.3 miles northeast of Newman. Samples were collected and analyzed monthly by the U. S. Bureau of Reclamation.

Period of Record January 1938 through December 1959.

SAN JOAQUIN RIVER AT PATTERSON WATER COMPANY (STA. 27a)

Sampling Point The station is located in Section 15 of Township 5 South, Range 8 East, Mt. Diablo Base and Meridian. Samples were collected at Patterson Water Company Intake at Patterson Bridge 3.6 miles northeast of Patterson. Monthly samples were collected and analyzed by the U. S. Bureau of Reclamation.

Period of Record June 1938 through December 1959.

SAN JOAQUIN RIVER ABOVE SALT SLOUGH (STA. 111b)

Sampling Point Station 111b is located in Section 26 of Township 7 South, Range 10 East, Mt. Diablo Base and Meridian. Samples were collected from the surface approximately 4 miles upstream from Salt Slough 3 miles south of Stevinson. Samples were collected and analyzed monthly by the U. S. Bureau of Reclamation.

Period of Record September 1955 through December 1959.

SAN JOAQUIN RIVER AT SAN ANDREAS LANDING (STA. 112b)

Sampling Point The station is located in Section 13, Township 3 North, Range 3 East, Mt. Diablo Base and Meridian. Samples were collected from the left bank at Andrus Island approximately 6 miles south of Isleton. This station is maintained and operated by the U. S. Bureau of Reclamation.

Period of Record March 1952 through December 1959.

SAN JOAQUIN RIVER AT WEST STANISLAUS IRRIGATION DISTRICT INTAKE (STA. 27b)

Sampling Point The station is located in Section 10 of Township 4 South, Range 7 East, Mt. Diablo Base and Meridian. Samples were collected at the intake canal to West Stanislaus Irrigation District 4 miles north of Westley 0.2 mile upstream from Tuolumne River. Samples were collected monthly and analyzed by the U. S. Bureau of Reclamation.

Period of Record June 1938 through December 1959.

SAN JOAQUIN RIVER AT WHITEHOUSE (STA. 24b)

Sampling Point Station 24b is located in Section 25 of Township 13 South, Range 15 East, Mt. Diablo Base and Meridian. Samples were collected approximately 12 miles upstream from Mendota Dam at the head of Willow Slough. Conductivity is determined semimonthly and mineral analyses made bimonthly during the irrigation season by the U. S. Bureau of Reclamation.

Period of Record November 1953 through December 1959.

A P P E N D I X   A

PROCEDURES AND CRITERIA

TABLE OF CONTENTS

Appendix A

TABLES

Field Methods and Procedures

Agencies which participated in the field sampling program during 1959 are listed below, together with the number of stations sampled by each agency:

Agency	Number of stations sampled
Department of Water Resources	146
Department of Fish and Game	1
United States Corps of Engineers	4
United States Bureau of Reclamation	22
City and County of San Francisco	5
Total	178

Water samples are collected in May and September for mineral, radiological and bacterial examination. Water samples are collected the other ten months for partial mineral analysis and bacterial examination. The samples collected monthly for bacterial examination (see Table A-1 for explanation) are kept in portable ice boxes until mailed to the laboratory in special containers. Every effort is made to get the samples to the laboratory as quickly as possible.

At the time the samples are collected for laboratory examination, field determinations are made for dissolved oxygen (DO), by the modified Winkler method; water temperature; and pH. Visual inspection is made of the stream or lake and the physical conditions are noted.

Where possible, the sampling stations have been selected so as to be at or near stream gaging stations so that gage heights can also be recorded at the time the water samples are collected. Instantaneous stream discharges at the time of sample collection are then obtained.

Laboratory Methods and Procedures

Methods of mineral and bacterial analysis, in general, are those described in the American Public Health Association publication "Standard Methods for the Examination of Water and Sewage", 10th Edition, 1955. In some cases, the methods described in the following publications also have been employed:

U. S. Geological Survey, "Methods of Water Analysis", 1950.

California Department of Public Works, Division of Water Resources, "Methods of Analysis", October 1955.

Table A-1 indicates the constituents analyzed for in the various types of analysis performed in connection with this program.

TABLE A-1

Types of Analysis

Constituent	Standard mineral	Partial mineral	Bacterial	Radiological
Specific Conductance	X	X		
pH[a]	X	X		
Total dissolved solids	X			
Percent sodium	X	X		
Hardness	X	X		
Turbidity	X	X		
Coliform			X	
Temperature[b]	X	X		
Dissolved oxygen[b]	X	X		
Calcium	X	X		
Magnesium	X	X		
Sodium	X	X		
Potassium	X			
Carbonate	X	X		
Bicarbonate	X	X		
Sulfate	X			
Chloride	X	X		
Nitrate	X			
Fluoride	X			
Boron	X	X		
Silica	X			
Phosphate	X			
Zinc[c]	X			
Iron[c]	X			
Copper[c]	X			
Aluminum[c]	X			
Manganese[c]	X			
Arsenic[c]	X			
Hexavalent chromium[c]	X			
Dissolved alpha				X
Solid alpha				X
Dissolved beta				X
Solid beta				X

a pH is determined both in the field and in the laboratory.
b Field determination.
c These constituents are normally designated as heavy metals.

The methods and procedures of sample preparation and determination of radioactivity in surface waters is as follows:

I. Sample Preparation

A. On receipt in the laboratory, each sample is well mixed, and two 250-ml portions taken. Each is acidified with a few drops of glacial acetic acid, and two drops of colloidal graphite suspension (Aquadag) added.

B. Each portion is filtered under suction through a membrane ("Millipore") filter, which retains suspended particles of approximately 0.2 microns diameter and larger. Filters are treated with an antistatic preparation (Merix Anti-Static No. 79-OL) to eliminate any extraneous electrostatic charge.

C. The filtrate is placed in a 250-ml volumetric flask, inverted, and the mouth placed in a 1-3/4" x 1/4" aluminum culture dish in a "chicken-feeder" type arrangement. The flask is supported by a ring stand; the dish rests on a hotplate adjusted so that the sample is taken to dryness at a temperature well below boiling.

D. At this point, there are duplicate samples of both suspended solids and dissolved material from each original water sample ready for determination of radioactive content.

II. Determination of Radioactivity

A. Two determinations are made on each sample, one for gross beta, one for gross alpha radioactivity. This represents a total of eight determinations for each original sample.

B. Beta activity is determined with an internal gas flow counter operating in the proportional region, using argon-methane mixture as a flow gas. Background determinations are made before the first sample count each day, and then after each two sample counts throughout the day. Determinations of counter efficiency are made with a reference standard (thallium - 204) at least twice daily. Each determination of sample and background count rate is made for a total of 1000 counts.

C. Alpha activity is determined with a scintillation counter utilizing an activated zinc sulfide phosphor. Sample, background and efficiency measurements are made in the same manner as are the beta measurements. Uranium 238 is used as an alpha reference standard. Each determination of sample and background count rate is made for a pre-set time of 32 minutes.

III. Calculations

A. Results are expressed as micro-micro curies per liter ($\mu\mu c/l$). One micro-micro curie is equivalent to 2.22 disintegrations per minute. Four values are reported for each sample: (a) beta activity in the solids retained on the filter, (b) beta activity in the filtrate (dissolved material), (c) alpha activity in the solids, and (d) alpha activity in the filtrate.

B. Sample counts are corrected for background and geometric efficiency.

C. Standard statistical procedures are utilized to compute the 0.9 error. The final result is expressed (symbolically) as $x \pm y$ $\mu\mu c/l$. This means that in a series of determinations on the same sample, the value of x should fall between $x - y$ and $x + y$, 90% of the time.

Water Quality Criteria

Criteria used by the Department of Water Resources in the evaluation of the acceptability of water for the most common beneficial uses are described hereinafter. In general, the values presented herein should be considered only as guides to judgment, and not as absolute limiting standards.

Criteria for Drinking Water

Chapter 7 of the California Health and Safety Code contains laws and standards relating to domestic water supply. Section 4010.5 of this code refers to the drinking water standards promulgated by the United States Public Health Service for water used on interstate carriers. These criteria have been adopted by the State of California. They are set forth in detail in United States Public Health Report, Volume 61, No. 11, March 15, 1946, re-issued in March 1956.

According to Section 4.2 of the above-named report, chemical substances in drinking water, either natural or treated, should not exceed the concentrations shown in Table A-2.

TABLE A-2

LIMITING CONCENTRATIONS OF MINERAL CONSTITUENTS FOR DRINKING WATER

United States Public Health Service Drinking Water Standards, 1946

Constituent	Parts per million
<u>Mandatory</u>	
Fluoride (F)	1.5
Lead (Pb)	0.1
Selenium (Se)	0.05
Hexavalent chromium (Cr^{+6})	0.05
Arsenic (As)	0.05
<u>Nonmandatory but Recommended Values</u>	
Iron (Fe) and manganese (Mn) together	0.3
Magnesium (Mg)	125
Chloride (Cl)	250
Sulfate (SO_4)	250
Copper (Cu)	3.0
Zinc (Zn)	15
Phenolic compounds in terms of phenol	0.001
Total solids - desirable	500
- permitted	1,000

Interim standards for certain mineral constituents have recently been adopted by the California State Board of Public Health. Based on these standards, temporary permits may be issued for drinking water failing to meet the United States Public Health Service Drinking Water Standards, provided the mineral constituents in the following tabulation are not exceeded.

UPPER LIMITS OF TOTAL SOLIDS AND SELECTED MINERALS IN DRINKING WATER AS DELIVERED TO THE CONSUMER

	Permit	Temporary Permit
Total solids	500 (1000)*	1500 ppm
Sulfates (SO_4)	250 (500)*	600 ppm
Chlorides (Cl)	250 (500)*	600 ppm
Magnesium (Mg)	125 (125)*	150 ppm

* Numbers in parentheses are maximum permissible, to be used only where no other more suitable waters are available in sufficient quantity for use in the system.

The California State Board of Health recently has defined the maximum safe amounts of fluoride ion in drinking water in relation to mean annual temperature.

Mean annual temperature in °F	Mean monthly maximum fluoride ion concentration in ppm
50	1.5
60	1.0
70 - above	0.7

The relationship of infant methomoglobinemia (a reduction of oxygen content in the blood, constituting a form of asphyxia) to nitrates in the water supply has led to limitation of nitrates in drinking water. The California State Department of Public Health has recommended a tentative limit of 10 ppm nitrogen (44 ppm nitrates) for domestic waters. Water containing higher concentrations of nitrates may be considered to be of questionable quality for domestic and municipal use.

Limits may be established for other organic mineral substances if their presence in water renders it hazardous, in the judgment of state or local health authorities.

An additional factor with which water users are concerned is hardness. Hardness is due principally to calcium and magnesium salts and is generally evidenced by inability to develop suds when using soap. The United States Geological Survey has suggested the following four degrees of hardness:

TABLE A-3

Hardness Classification of Waters
U. S. Geological Survey

Range of hardness in parts per million	Relative classification
0 - 55	Soft
56 - 100	Slightly hard
101 - 200	Moderately hard
Greater than 200	Very hard

According to the International Commission on Radiological Protection[1], tentatively concurred in by the National Committee on Radiation Protection[2], if the Radium - 226 and Radium - 228 activity in water is substantially less than 10 μμc/l, the maximum permissible concentration of otherwise unidentified radionuclides in water for individuals in the population at large may be considered to be 100 μμc/l.

For the purposes of the environmental survey of surface water made for this report, it has been assumed that the total dissolved and solid alpha activity is derived from Ra^{226} and Ra^{228}.

1 "Report on Decisions of the 1959 Meeting of the Interantional Committee on Radiological Protection (ICRP)". Radiology, Vol. 74, No. 1, January 1960, pp. 116-119.

2 Somatic Radiation Dose for the General Population, Ad Hoc Committee of the National Committee on Radiation Protection and Measurements. Science, Vol. 131, No. 3399, February 19, 1960, pp. 482-486.

During the 1959 reporting year, the highest alpha activity observed in monitored surface waters was 1.86 μμc/l. Consequently, it is believed that the maximum permissible concentration of 100 μμc/l, as recommended by the I.C.R.P., was met by all stations sampled in the Surface Water Monitoring Program during 1959.

Criteria for Irrigation Water

Because of the diverse climatological conditions, crops, soils, and irrigation practices in California, criteria which may be set up to evaluate the suitability of water for irrigation use must necessarily be of a general nature, and judgment must be used in their application to individual cases. Suggested limiting values for total dissolved solids, chloride concentration, percent sodium and boron concentration for three general classes of irrigation water are shown in Table A-4.

TABLE A-4

QUALITATIVE CLASSIFICATION OF IRRIGATION WATERS

Chemical properties	Class 1: Excellent to good (Suitable for most plants under any conditions of soil and climate)	Class 2: Good to injurious (Possibly harmful for some crops under certain soil conditions)	Class 3: Injurious to unsatisfactory (Harmful to most crops and unsatisfactory for all but the most tolerant)
Total dissolved solids			
In ppm	Less than 700	700 - 2,000	More than 2,000
In conductance, EC x 10^6	Less than 1,000	1,000 - 3,000	More than 3,000
Chloride ion concentration			
In milliequivalents per liter	Less than 5	5 - 10	More than 10
In ppm	Less than 175	175 - 350	More than 350
Sodium in percent of base constituents	Less than 60	60 - 75	More than 75
Boron in ppm	Less than 0.5	0.5 - 2.0	More than 2.0

Criteria for Industrial Water

The water quality criteria for the diversified uses of water in industry range from the exacting requirements for make-up water for high pressure boilers to the minimum requirements for water washdown and metallurgical processing.

Because of the large number of industrial uses of water and widely varied quality requirements, it is practicable to suggest only very broad criteria of quality. These variable conditions make it desirable to consider water quality requirements in broad and general terms only, and, where possible, for groups of related industries rather than individually. The general quality requirements of several individual and major groups of water uses are listed in Table A-5.

The values shown in this table are those suggested in the Progress Report of the Committee on Quality of Tolerance of Water for Industrial Uses in the Journal of the New England Water Works Association, Volume 54, 1940.

Criteria for Fish and Aquatic Life

Water of suitable quality and quantity is a fundamental requirement for the existence of an abundant supply of fish and aquatic life. It is very important that water quality conditions be such as to maintain an abundant supply of food required by fish and other desirable forms of aquatic life. Streams utilized for the propagation of fish and aquatic life should be free of toxic or harmful concentrations of mineral and organic substances and excessive turbidity. Extensive field and laboratory studies conducted by the United States Fish and Wildlife Service show that, among other things, the water in streams supporting a mixed fauna of fresh water fish such as bluegill, bass, crappie and catfish should have the following properties:

(a) Dissolved oxygen not less than 5 ppm (at least 6 ppm for Salmonids),

(b) pH range between 6.5 and 8.5,

(c) Ionizable salts, as indicated by conductivity, between 150 and 500 micromhos at 25° Centigrade, and in general not exceeding 1,000 micromhos,

(d) Ammonia not exceeding 1.5 ppm.

Mineral salts of high toxicity to fish are those of silver, mercury, copper, zinc, lead, cadmium, nickel, trivalent and hexavalent chromium, and others. Some pairs of toxicants, such as copper and zinc (also copper and cadmium, nickel and zinc) are far more toxic when combined than when they occur individually. Other toxic substances, when combined,

TABLE A-5

WATER QUALITY TOLERANCE FOR INDUSTRIAL USES[a]

Allowable limits in parts per million

Use	Turbidity	Color	Hardness as $CaCO_3$	Iron[c] as Fe	Manganese as Mn	Total solids	Alkalinity as $CaCO_3$	Odor, taste	Hydrogen sulfide	Miscellaneous Requirements: Health	Miscellaneous Requirements: Other
Air conditioning				0.5	0.5			Low	1		No corrosiveness, slime formation
Baking	10	10		0.2	0.2			Low	0.2	Potable[b]	
Brewing											
Light Beer	10			0.1	0.1	500	75	Low	0.2	Potable[b]	NaCl less than 275 ppm (pH 6.5-7.0).
Dark Beer	10			0.1	0.1	1,000	150	Low	0.2	Potable[b]	NaCl less than 275 ppm (pH 7.0 or more)
Canning											
Legumes	10		25-75	0.2	0.2			Low	1	Potable[b]	
General	10			0.2	0.2			Low	1	Potable[b]	
Carbonated beverages	2	10	250	0.2	0.2	850	50-100	Low	0.2	Potable[b]	Organic color plus oxygen consumed less than 10 ppm.
Confectionery				0.2	0.2	100		Low	0.2	Potable[b]	pH above 7.0 for hard candy.
Cooling	50		50	0.5	0.5				5		No corrosiveness, slime formation.
Food: General	10			0.2	0.2			Low		Potable[b]	
Ice	5	5		0.2	0.2			Low		Potable[b]	SiO_2 less than 10 ppm.
Laundering			50	0.2	0.2						
Plastics, clear, Uncolored	2	2		0.02	0.02	200					
Paper and pulp:											
Groundwood	50	20	180	1.0	0.5						No grit, corrosiveness.
Draft pulp	25	15	100	0.2	0.1	300					
Soda and sulfide	15	10	100	0.1	0.05	200					
High-grade light papers	5	5	50	0.1	0.05	200					
Rayon (viscose):											
Pulp production	5	5	8	0.05	0.03	100	total 50; hydroxide 8				Al_2O_3 less than 8 ppm, SiO_2 less than 25 ppm, Cu less than 5 ppm.
Manufacture	0.3		55	0.0	0.0						pH 7.8 to 8.3
Tanning	20	10-100	50-135	0.2	0.2		total 135; hydroxide 8				
Textiles: General	5	20		0.25	0.25						
Dyeing	5	5-20		0.25	0.25	200					Constant composition. Residual alumina less than 0.5 ppm.
Wool scouring		70		1.0	1.0						
Cotton bandage	5	5		0.2	0.2			Low			

a-Moore, E. W., Progress Report of the Committee on Quality Tolerances of Water for Industrial Uses: Journal New England Water Works Association, Volume 54, Page 271, 1940.
b-Potable water, conforming to U. S. P.H.S. standards, is necessary.
c-Limit given applies to both iron alone and the sum of iron and manganese.

neutralize each other through antagonism or chemical reaction (e.g., free cyanide combines with toxic heavy metal cations, such as nickel and copper ions, to form relatively harmless metallocyanide complexes).

The increasing use of household and industrial detergents, as well as the expansion in the manufacture and use of agriculture insecticides, poses serious hazards to fish and aquatic life. Preliminary studies, for example, indicate that one of the most common household detergents is lethal to relatively hardy fish at very low concentrations. This detergent was lethal to fish in fresh water at concentrations below 0.1 ppm and below 0.005 ppm in salt water. The increase in toxicity in salt water can probably be attributed to the fact that marine fishes must ingest water to maintain their osmotic balance.

Development and use of water resources, including the construction of dams for storage of water, frequently affects water temperatures which in turn affect fish and other aquatic life. Optimum water temperatures for cold water fish, such as trout and salmon, normally lie between 32° and 65° Fahrenheit. The cold water species are generally intolerant of temperatures above 75° Fahrenheit and will seek the lower temperature where possible. Warm water fish such as minnows, carp, catfish, perch, sunfish, and bass normally live in water having temperatures ranging from near 32° to 86° Fahrenheit. Acclimatization enables certain warm water species to live in waters having temperatures as high as 90° Fahrenheit, although they will migrate, where possible, to waters below 86° Fahrenheit.

A P P E N D I X B

BASIC DATA

TABLE OF CONTENTS

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

ANTELOPE CREEK NEAR TENNANT (STA. 1e)

Mineral constituents in parts per million / equivalents per million

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
3/[illegible] 1630	26*	40	10.9	84	54.5	7.3	6.4 / 0.32	1.7 / 0.14	4.4 / 0.19	1.2 / 0.03	0.0 / 0.00	24 / 0.39	9.6 / 0.20	1.5 / 0.04	0.0 / 0.00	0.0 / 0.00	0.0	30		67	28	23	3			
4/8 [illegible]	44	36	11.4	83	53.[illegible]	7.1	5.2 / 0.26	1.7 / 0.14	2.8 / 0.12	1.2 / 0.03	0.0 / 0.00	30 / 0.49	1.9 / 0.04	1.0 / 0.03	0.0 / 0.00	0.0 / 0.00	0.0	26		55	22	20	0			
5/6 0830	59	40	1[illegible].7	82	46.8	7.1	5.8 / 0.29	2.8 / 0.23	1.9 / 0.08	0.3 / 0.01	0.0 / 0.00	23 / 0.38	7.7 / 0.16	1.8 / 0.05	0.2 / 0.00	[illegible] / 0.00	0.0	24	Fe 0.03 Al 0.05[d] PO_4 0.00	56	13	26	7	15		
6/3 1450	48	43	1[illegible].3	83	57.4	7.2	6.[illegible] / 0.30	2.7 / 0.22	3.5 / 0.15	1.1 / 0.03	0.0 / 0.00	31 / 0.51	5.8 / 0.12	1.5 / 0.04	0.5 / 0.01	0.0 / 0.00	0.0	35		71	21	26	1			
7/15 [illegible]30	18	56	8.2	78	68.6	7.3	6.8 / 0.34	2.2 / 0.18	3.6 / 0.16	1.4 / 0.04	0.0 / 0.00	34 / 0.56	4.0 / 0.08	2.2 / 0.06	0.0 / 0.00	0.1 / 0.01	0.0	37		74	22	26	0			
8/[illegible] [illegible]	14	60	8.[illegible]	80	63.6	7.4	7.2 / 0.36	2.4 / 0.20	3.7 / 0.16	1.7 / 0.04	0.0 / 0.00	34 / 0.56	4.0 / 0.08	4.0 / 0.11	0.0 / 0.00	0.1 / 0.01	0.0	33		76	21	28	0			
9/7 1435	14	56	7.7	73	62.0	7.[illegible]	5.6 / 0.28	3.9 / 0.32	2.9 / 0.13	1.8 / 0.05	0.0 / 0.00	36 / 0.59	5.0 / 0.11	2.5 / 0.07	0.0 / 0.00	0.0 / 0.00	0.0	34	Fe 0.03 PO_4 0.0[d]	74	17	30	0			
10/14 1200	15	52	8.8	80	79.4	7.[illegible]	8.8 / 0.44	3.4 / 0.28	5.9 / 0.26	1.6 / 0.04	0.0 / 0.00	47 / 0.77	7.0 / 0.15	4.0 / 0.11	0.0 / 0.00	0.3 / 0.02	0.0	34		88	25	36	0			
11/11 112[illegible]	14	36	11.3	82	61.2	7.[illegible]	6.0 / 0.30	1.7 / 0.14	3.7 / 0.16	1.1 / 0.03	0.0 / 0.00	35 / 0.57	1.0 / 0.02	0.5 / 0.01	0.2 / 0.00	0.3 / 0.02	0.0	33		64	25	22	0			
12/[illegible] [illegible]	20	[illegible]2	11.8	97	61.9	7.2	7.2 / 0.36	1.7 / 0.14	4.6 / 0.20	2.6 / 0.07	0.0 / 0.00	35 / 0.57	1.0 / 0.02	6.0 / 0.17	0.1 / 0.00	[illegible] / [illegible]	0.0	33		73	26	25	0			

* Daily Mean (estimated)

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe) aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

BIG RIVER NEAR MOUTH (STA. 8c)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/6 1630	Not Available	48	10.7	92	143	7.1	14 0.70	4.1 0.34	9.8 0.43	2.0 0.05	0.0 0.00	57 0.93	15 0.31	8.5 0.24	1.0 0.02	0.2 0.01	0.2	16		99	28	52	5			
2/5 1130	200 (est.)	46	11.7	98	157	7.4	15 0.75	6.0 0.49	8.6 0.37	1.0 0.03	0.0 0.00	78 1.28	4.8 0.10	7.5 0.21	0.2 0.00	0.1 0.01	0.1	18		99	23	62	0			
3/3 0900	Not Available	49	11.0	96	146	7.1	14 0.70	6.1 0.50	9.2 0.40	0.7 0.02	0.0 0.00	74 1.21	9.6 0.20	7.2 0.20	0.0 0.00	0.0 0.00	0.0	20		103	25	60	0			
4/1 1820	Not Available	55	10.8	101	120	7.2	12 0.60	3.4 0.28	7.5 0.33	0.8 0.02	0.0 0.00	54 0.89	5.8 0.12	6.5 0.18	0.9 0.01	0.0 0.00	0.0	18		82	27	44	0			
5/4 1600	100 (est.)	59	9.8	97	166	7.2	17 0.85	4.5 0.37	8.7 0.38	1.2 0.03	0.0 0.00	79 1.29	5.8 0.12	8.0 0.23	0.1 0.00	0.0 0.00	0.1	18	Fe 0.13 Al 0.02[d] PO_4 0.05	103	23	61	0	0.9		
6/1 1400	50 (est.)	62	9.9	101	210	7.2	21 1.05	7.4 0.61	12 0.52	1.3 0.03	0.0 0.00	114 1.87	9.0 0.19	7.0 0.20	0.0 0.00	0.1 0.01	0.37	24	Fe 0.01 Al 0.04[d] Cu 0.01 Zn 0.07	138	24	83	0			
7/13 1550	25 (est.)	70	8.1	90	216	7.5	22 1.10	7.3 0.60	12 0.52	1.6 0.04	0.0 0.00	118 1.93	4.0 0.08	7.0 0.20	0.2 0.00	0.0 0.00	0.4	17		130	23	85	0			
8/3 1445	20 (est.)	65	8.5	90	213	7.3	22 1.10	6.8 0.56	13 0.57	1.9 0.05	0.0 0.00	117 1.92	6.0 0.12	7.8 0.22	0.0 0.00	0.2 0.01	0.5	17		133	25	83	0			
9/7 1515	10 (est.)	64	8.6	90	211	7.5	21 1.05	6.9 0.57	14 0.61	1.6 0.04	0.0 0.00	112 1.84	6.0 0.12	10 0.28	0.0 0.00	0.1 0.01	0.5	17	PO_4 0.05 Zn 0.03[d]	132	27	81	0	3		
10/5 1520	8 (est.)	62	9.6	98	226	7.6	30 1.50	3.6 0.30	14 0.61	2.0 0.05	0.0 0.00	122 2.00	1.0 0.02	16 0.45	0.3 0.00	0.1 0.01	0.4	18		145	25	90	0			
11/2 1620	5 (est.)	51	10.3	92	233	7.3	24 1.20	8.8 0.72	16 0.70	2.4 0.06	0.0 0.00	126 2.07	14 0.29	8.5 0.24	0.0 0.00	0.0 0.00	0.5	18		154	26	96	0			
12/8 1615	39 (est.)	39	11.3	86	235	7.3	25 1.25	8.1 0.67	14 0.61	2.8 0.07	0.0 0.00	127 2.08	8.0 0.17	14 0.39	0.0 0.00	0.0 0.00	0.4	17		152	23	96	0			

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

BUTTE CREEK NEAR MACDOEL (STA. 1d)

Mineral constituents in parts per million / equivalents per million (each mineral value given as ppm/epm)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
3/3 1750	28*	45	10.7	88	69.8	7.3	6.8/0.34	2.4/0.20	4.4/0.19	2.0/0.05	0.0/0.00	30/0.49	9.6/0.20	1.5/0.04	0.0/0.00	0.0/0.00	0.0	30		72	24	27	2			
4/8 0730	28	42	10.1	80	71.9	7.3	8.0/0.40	1.9/0.16	3.1/0.13	1.3/0.03	0.0/0.00	38/0.62	1.9/0.04	1.0/0.03	0.4/0.01	0.0/0.00	0.0	26		63	18	28	[illegible]			
5/6 0720	36	48	9.5	82	76.5	7.3	8.0/0.40	3.9/0.32	3.8/0.17	1.3/0.03	0.0/0.00	45/0.74	4.8/0.10	1.8/0.05	0.7/0.01	0.0/0.00	0.0	29	Fe 0.08 Al 0.11 [d] PO_4 0.05	75	18	36	[illegible]	35		
6/3 1350	20	51	9.2	82	56.9	7.3	4.8/0.24	2.9/0.24	3.4/0.15	1.3/0.03	0.0/0.00	32/0.52	3.8/0.08	1.5/0.04	0.5/0.01	0.0/0.00	0.0	35		[illegible]	23	24	[illegible]			
7/15 1030	3.1	67	7.6	82	85.0	7.4	8.8/0.44	2.9/0.24	5.2/0.23	2.1/0.05	0.0/0.00	50/0.82	3.0/0.06	2.2/0.06	0.0/0.00	0.2/0.01	0.0	28		77	24	34	[illegible]			
8/11 1400	2.0	70	8.7	97	81.3	7.9	8.0/0.40	2.4/0.20	5.[illegible]/0.22	2.1/0.05	[illegible]/0.00	47/0.77	3.0/0.06	2.0/0.06	[illegible]/0.00	[illegible]/0.01	0.0	21		67	25	[illegible]	[illegible]			
9/7 1630	4.3	64	8.1	85	81.2	7.6	6.4/0.32	4.9/0.40	4.8/0.21	2.2/0.06	[illegible]/0.00	46/0.75	9.[illegible]/0.19	1.0/0.03	0.9/0.01	[illegible]/0.00	0.0	30	Fe [illegible] PO_4 [illegible] [d]	[illegible]	2[illegible]	36	[illegible]			
10/14 1100	6.7	59	8.6	85	72.5	7.4	8.0/0.40	2.4/0.20	4.1/0.18	1.4/0.04	[illegible]/0.00	42/0.69	2.[illegible]/0.04	2.0/0.06	0.0/0.00	0.2/0.01	[illegible]	35		7[illegible]	[illegible]	[illegible]	[illegible]			
11/11 1005	8.3	34	11.5	81	73.1	7.[illegible]	7.6/0.38	1.5/0.12	4.3/0.19	1.7/0.04	0.0/0.00	41/0.67	[illegible]/0.02	0.8/0.02	0.1/0.00	0.1/0.01	0.0	31		[illegible]8	26	25	[illegible]			
12/8 1415	6.8	32	11.4	90	79.7	7.2	8.0/0.40	2.7/0.22	5.3/0.23	2.9/0.07	0.0/0.00	46/0.75	0.0/0.00	6.0/0.17	0.1/0.00	0.1/0.01	0.0	35		[illegible]	25	[illegible]	[illegible]			

* Daily Mean

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

EEL RIVER NEAR DOS RIOS (STA. 5d)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/7 1440	370	58	10.6	103	124	7.4[b]	14 / 0.70	4.1 / 0.34	4.4 / 0.19	1.0 / 0.03	0.0 / 0.00	54 / 0.89	12 / 0.25	4.5 / 0.13	1.3 / 0.02	0.1 / 0.01	0.2	10		79[f]	15	52	8			
2/17 1150	11,690	45			100	7.4[a]	12 / 0.60	3.9 / 0.32	4.1 / 0.18	1.6 / 0.04	0.0 / 0.00	52 / 0.85	11 / 0.23	2.2 / 0.06	0.1 / 0.00	0.1 / 0.01	0.1	10		71[f]	16	46	3			
3/5 1230	1,034	52			121	7.7[b]	14 / 0.70	4.6 / 0.38	4.4 / 0.19	0.8 / 0.02	0.0 / 0.00	58 / 0.95	11 / 0.23	2.8 / 0.08	0.8 / 0.01	0.0 / 0.00	0.1	11		78[f]	15	54	6			
4/9 1350	176	64			165	8.2[b]	20 / 1.00	5.8 / 0.48	5.4 / 0.23	0.7 / 0.02	0.0 / 0.00	87 / 1.43	8.6 / 0.18	3.0 / 0.08	0.0 / 0.00	0.1 / 0.01	0.2	11		98[f]	13	74	3			
5/14 1630	45	68	8.1	88	221	8.2[b]	27 / 1.35	7.2 / 0.59	6.9 / 0.30	1.1 / 0.03	0.0 / 0.00	120 / 1.97	7.7 / 0.16	5.0 / 0.14	0.0 / 0.00	0.0 / 0.00	0.3	9.0	Al 0.06 PO_4 0.00 [d]	123[f]	13	97	0	1		
6/10 0830	26.6	64	8.2	85	234	8.2[b]	29 / 1.45	8.6 / 0.71	8.4 / 0.37	1.6 / 0.04	0.0 / 0.00	128 / 2.10	17 / 0.35	6.0 / 0.17	0.0 / 0.00	0.1 / 0.01	0.4	11		145[f]	14	108	3			
7/14 1140	8.1	80	7.3	90	236	8.2[b]	27 / 1.35	8.4 / 0.69	10 / 0.44	1.4 / 0.04	0.0 / 0.00	122 / 2.00	17 / 0.35	5.8 / 0.16	0.2 / 0.00	0.1 / 0.01	0.3	4.2		134[f]	17	102	2			
8/5 1315	2.5	80	9.4	116	231	8.2[a]	2.00[c]		11 / 0.48		0.0 / 0.00	112 / 1.84		5.0 / 0.14			0.4			138[e]	19	100	8	10		
9/15 0800	41.2	63	8.6	89	235	7.8[a]	25 / 1.25	9.1 / 0.75	12 / 0.52	1.4 / 0.04	0.0 / 0.00	116 / 1.90	17 / 0.35	10 / 0.28	0.0 / 0.00	0.0 / 0.00	0.4	13	PO_4 0.00 Zn 0.03 [d]	145[f]	20	100	5	1		
10/7 0820	17.8	56	9.1	87	263	8.1[b]	2.38[c]		11 / 0.48		0.0 / 0.00	145 / 2.38		6.0 / 0.17			0.8			158[e]	17	119	0	3		
11/5 0920	12.4	49	10.4	91	257	7.7[b]	2.36[c]		10 / 0.44		0.0 / 0.00	141 / 2.31		7.5 / 0.21			0.8			154[e]	16	118	2	2		
12/9 1528	9.6	40	13.2	104	280	8.2[b]	2.72[c]		12 / 0.52		0.0 / 0.00	146 / 2.39		9.0 / 0.25			1.1			168[e]	16	136	16	10		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

EEL RIVER NEAR MCCANN (STA. 5)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	No Gage																								Median 2	USGS
1/21 1630		44	11.8	96	147	7.3	1.42[c]		4.1 / 0.18		0.0 / 0.00	76 / 1.25		4.0 / 0.11			0.1			79[e]	11	71	9	60	Maximum 23	
2/4 1700		47	11.8	100	149	7.6	1.36[c]		4.0 / 0.17		0.0 / 0.00	73 / 1.20		3.0 / 0.08			0.1			80[e]	11	68	8	[illegible]	Minimum 0.046	
3/3 1320		51	11.3	100	137	7.4	1.30[c]		3.3 / 0.14		0.0 / 0.00	70 / 1.15		2.2 / 0.06			0.1			73[e]	10	65	8	85		
4/7 0830		60	9.0	90	134	7.4	1.32[c]		2.9 / 0.13		0.0 / 0.00	70 / 1.15		2.2 / 0.06			0.0			72[e]	9	66	9	[illegible]		
5/5 1230		62	8.9	90	180	7.3	25 / 1.25	5.1 / 0.42	3.7 / 0.16	0.5 / 0.01	0.0 / 0.00	94 / 1.54	12 / 0.25	3.0 / 0.08	0.1 / 0.00	0.0 / 0.00	0.1	10	Al 0.06 PO_4 0.05[d]	1[illegible][f]	[illegible]	84	[illegible]	2		
6/1 1900		67	9.3	100	205	7.4	2.12[c]		5.3 / 0.23		1 / 0.03	110 / 1.80		3.5 / 0.10			0.2		Tot Alk 112	109[e]	10	106	1[illegible]	[illegible]		
7/14 1015		71	8.7	98	258	7.8	2.60[c]		7.5 / 0.33		2 / 0.07	134 / 2.20		5.5 / 0.16			0.1		Tot Alk 138	138[e]	11	130	1[illegible]	[illegible]		
8/4 1330		69	8.8	97	265	7.6	2.54[c]		7.4 / 0.32		4 / 0.13	130 / 2.13		6.5 / 0.18			0.2		Tot Alk 138	142[e]	11	127	14	[illegible]		
9/7 1015		70	8.6	96	280	7.8	37 / 1.85	9.6 / 0.79	8.6 / 0.37	1.4 / 0.04	0.0 / 0.00	141 / 2.31	22 / 0.46	5.5 / 0.16	0.7 / 0.01	0.1 / 0.01	0.2	7.0	Fe 0.02 Al 0.02[d] PO_4 0.0	161[f]	12	132	1[illegible]	1[illegible]		
10/6 1045		61	9.2	93	303	7.7	2.70[c]		11 / 0.48		0.0 / 0.00	134 / 2.20		13 / 0.37			0.3			162[e]	15	135	[illegible]	2		
11/3 1615		57	10.6	102	298	7.7	2.69[c]		10 / 0.44		0.0 / 0.00	140 / 2.29		8.8 / 0.25			0.3			160[e]	14	135	20	4		
12/9 1230		52	10.9	98	399	7.7	4.08[c]		8.4 / 0.37		0.0 / 0.00	230 / 3.77		7.0 / 0.20			0.3			214[e]	8	204	1[illegible]	1[illegible]		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

EEL RIVER AT SCOTIA (STA. 6)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																									Median 2.3	USGS
1/21 1530	5,410	47	11.5	98	165	7.4	1.50[c]		5.2 / 0.23		0.0 / 0.00	78 / 1.28		5.8 / 0.16			0.1			95[e]	13	75	11	30	Maximum 620.	
2/4 1520	6,350	49	11.2	97	152	7.5	1.32[c]		4.3 / 0.19		0.0 / 0.00	73 / 1.20		4.0 / 0.11			0.0			87[e]	13	66	6	9	Minimum <0.045	
3/3 1400	8,890	60	10.5	104	245	7.3	1.98[c]		11 / 0.48		0.0 / 0.00	112 / 1.84		12 / 0.34			0.1			141[e]	20	99	7	60		
4/7 1000	6,080	60	10.4	104	143	7.4	1.36[c]		4.1 / 0.18		0.0 / 0.00	72 / 1.18		3.0 / 0.08			0.0			82[e]	12	68	9	50		
5/5 1330	3,830	61	10.2	102	186	7.4	25 / 1.25	5.8 / 0.48	4.4 / 0.19	0.6 / 0.02	0.0 / 0.00	96 / 1.57	12 / 0.25	4.0 / 0.11	0.1 / 0.00	0.0 / 0.00	0.1	12	Fe 0.01 Al 0.02[d] PO_4 0.05	111[f]	10	87	8	5		
6/2 0615	960	62	10.0	102	231	7.5	2.44[c]		7.3 / 0.32		1 / 0.03	128 / 2.10		6.0 / 0.17			0.2		Tot. Alk. 130	133[e]	12	122	15	2		
7/14 1115	174	78	12.3	148	263	8.2	2.38[c]		9.7 / 0.42		5 / 0.17	130 / 2.13		8.5 / 0.24			0.1		Tot. Alk. 140	151[e]	15	119	4	1		
8/4 1430	109	69	11.1	122	215	8.0	2.18[c]		9.5 / 0.41		4 / 0.13	97 / 1.59		7.5 / 0.21			0.1		Tot. Alk. 105	124[e]	16	109	23	6		
9/7 1105	76	75	11.9	139	243	8.3	24 / 1.20	11 / 0.92	11 / 0.48	1.6 / 0.04	0.0 / 0.00	120 / 1.97	17 / 0.35	8.2 / 0.23	0.5 / 0.01	0.2 / 0.01	0.2	3.4	Fe 0.02 Al 0.03[d] PO_4 0.0	136[f]	18	106	8	15		
10/6 1135	168	63	10.8	111	312	8.1	2.88[c]		11 / 0.48		0.0 / 0.00	161 / 2.64		8.4 / 0.24			0.2			179[e]	14	144	12	2		
11/4 0800	174	54	10.6	98	341	7.7	3.18[c]		11 / 0.48		0.0 / 0.00	180 / 2.95		10 / 0.28			0.1			196[e]	13	159	11	5		
12/9 1315	126	48	11.1	98	318	7.6	3.00[c]		11 / 0.48		0.0 / 0.00	168 / 2.75		8.0 / 0.23			0.2			183[e]	14	150	12	10		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

EEL RIVER, MIDDLE FORK AT DOS RIOS (STA. 5c)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										[illegible]
1/7 1520	1,420	56	10.5	100	127	7.4[b]	14 / 0.70	4.4 / 0.36	4.2 / 0.18	1.1 / 0.03	0.0 / 0.00	55 / 0.90	12 / 0.25	4.2 / 0.12	1.0 / 0.02	0.1 / 0.01	0.2	10		78[f]	14	[illegible]	[illegible]			
2/17	Not Sampled																									
3/5 1330	2,670	48			115	7.8[b]	15 / 0.75	4.3 / 0.35	3.3 / 0.14	0.6 / 0.02	0.0 / 0.00	54 / 0.89	15 / 0.31	2.2 / 0.06	0.0 / 0.00	0.0 / 0.00	0.0	9.9		77[f]	[illegible]	55	[illegible]			
4/9	1,522	54			139	7.5[b]	15 / 0.75	6.4 / 0.53	2.2 / 0.10	0.3 / 0.01	0.0 / 0.00	78 / 1.28	1.9 / 0.04	2.0 / 0.06	0.0 / 0.00	[illegible] / 0.00	[illegible]	8.8		[illegible][f]	[illegible]	64	[illegible]			
5/14 1530	[illegible]	64	7.6	79	135	7.7[b]	18 / 0.90	3.6 / 0.30	3.5 / 0.15	0.8 / 0.02	0.0 / 0.00	70 / 1.15	9.6 / 0.20	[illegible] / 0.06	[illegible]	[illegible]	[illegible]	7.7	Fe [illegible] Al [illegible][d] PO_4 [illegible]	79[f]	[illegible]	[illegible]	[illegible]	[illegible]		
6/10 1215	[illegible]	76	8.5	100	199	8.1[b]	26 / 1.30	6.3 / 0.52	5.1 / 0.22	0.9 / 0.02	0.0 / 0.00	99 / 1.62	17 / 0.35	[illegible] / 0.13	[illegible]	0.1 / 0.01	0.1	16		[illegible][f]	11	[illegible]	[illegible]			
7/14 1115	24.1	74	7.6	87	281	8.[illegible][b]	34 / 1.70	9.5 / 0.78	[illegible] / 0.39	1.3 / 0.03	0.0 / 0.00	132 / 2.16	21 / 0.44	[illegible] / 0.28	[illegible]	0.1 / 0.01	0.1	[illegible]		[illegible][f]	[illegible]	124	[illegible]			
8/5 1225	11.1	76	[illegible]	[illegible]	242	8.2[b]	[illegible][c]		12 / 0.52		0.0 / 0.00	116 / 1.90		16 / 0.45			0.1			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
9/15 1430	14	68	9.2	100	352	7.8[a]	38 / 1.90	11 / [illegible]	17 / 0.74	1.8 / 0.05	[illegible] / 0.00	115 / 1.88	43 / [illegible]	29 / [illegible]	[illegible]	[illegible]	0.3	[illegible]	Fe 0.08 Zn [illegible][d] PO_4 [illegible] Al [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
10/7 2045	30	58	8.8	[illegible]	[illegible]	8.[illegible][b]	[illegible][c]		14 / 0.61		[illegible] / 0.00	128 / 2.10		16 / 0.45			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
11/5 1305	21	49	[illegible]	91	343	[illegible][b]	[illegible][c]		14 / 0.61		[illegible] / 0.00	135 / 2.21		22 / 0.62			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
12/9 1425	15	40			374	8.1[b]	[illegible][c]		[illegible]		[illegible] / 0.00	154 / 2.52		[illegible] / 0.71			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

EEL RIVER, SOUTH FORK NEAR MIRANDA (STA. 7)

Mineral constituents in parts per million / equivalents per million (shown as ppm/epm)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)
1959																		
1/21 1730	1,610	46	11.6	98	135	7.3	1.16[c]		6.1/0.27		0.0/0.00	70/1.15		5.2/0.15			0.0	
2/4 1800	1,650	48	11.3	97	121	7.5	1.04[c]		5.0/0.22		0.0/0.00	59/0.97		4.0/0.11			0.0	
3/3 1240	1,510	52	11.1	100	133	7.2	1.08[c]		5.2/0.23		0.0/0.00	67/1.10		4.5/0.13			0.1	
4/6 1600	1,277	59	9.3	92	132	7.3	1.16[c]		4.8/0.21		0.0/0.00	66/1.08		4.5/0.13			0.0	
5/5 1130	402	61	9.0	91	170	7.3	19/0.95	5.7/0.47	6.1/0.27	0.4/0.01	0.0/0.00	87/1.43	7.7/0.16	4.7/0.13	0.0/0.00	0.0/0.00	0.0	14
6/1 1845	180	74	8.1	94	189	7.3	1.78[c]		7.7/0.33		3/0.10	97/1.59		6.0/0.17			0.0	
7/14 0925	68	69	7.7	85	225	8.0	2.02[c]		9.4/0.41		0.0/0.00	128/2.10		5.8/0.16			0.1	
8/4 1130	37	70	7.9	88	223	7.9	1.96[c]		9.0/0.39		4/0.13	116/1.90		6.0/0.17			0.1	
9/8 0930	32	70	8.1	90	246	7.9	27/1.35	9.6/0.79	10/0.44	1.8/0.05	0.0/0.00	134/2.20	8.0/0.17	8.5/0.24	0.4/0.01	0.1/0.01	0.1	4.0
10/6 0940	52	60	8.1	81	264	7.5	2.34[c]		10/0.44		0.0/0.00	142/2.33		7.8/0.22			0.2	
11/3 1505	48	53	11.2	102	266	7.9	2.28[c]		11/0.48		0.0/0.00	142/2.33		8.5/0.24			0.1	
12/9 1100	44	41	11.9	93	262	7.9	2.48[c]		9.6/0.42		0.0/0.00	138/2.26		10/0.28			0.5	

Date and time sampled P.S.T.	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959							Median 2.3	USGS
1/21 1730		80[e]	19	58	1	25	Maximum 62.	
2/4 1800		72[e]	17	52	4	8	Minimum <0.045	
3/3 1240		78[e]	18	54	0	45		
4/6 1600		78[e]	15	58	4	50		
5/5 1130	Fe 0.01 Al 0.03[d] PO_4 0.05	101[f]	16	71	0	2		
6/1 1845	Tot. Alk. 103	112[e]	16	89	5	2		
7/14 0925		133[e]	17	101	0	1		
8/4 1130	Tot. Alk. 124	132[e]	17	98	0	5		
9/8 0930	PO_4 0.00 Al 0.03[d]	136[f]	17	107	0	2		
10/6 0940		156[e]	16	117	1	1		
11/3 1505		158[e]	17	114	0	3		
12/9 1100		155[e]	14	124	11	10		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

GUALALA RIVER, SOUTH FORK NEAR ANNAPOLIS (STA. 9a)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																									Median 2.3	USGS
1/22 1200	146	46	11.0	98	204	7.3	19 0.95	9.4 0.77	9.0 0.39	0.9 0.02	0.0 0.00	102 1.67	9.6 0.20	8.7 0.25	0.7 0.01	0.1 0.01	0.0	14		121	18	[illegible]	2		Maximum [illegible]	
2/5 1530	104	49	11.[illegible]	[illegible]	199	7.3	19 0.95	8.3 0.68	8.3 0.36	1.0 0.03	0.0 0.00	98 1.61	10 0.21	7.9 0.22	0.1 0.00	0.0 0.00	0.1	16		119	18	82	2		Minimum [illegible]	
3/2 1645	266	55	10.3	97	189	7.3	18 0.90	8.3 0.68	7.6 0.33	0.9 0.02	0.0 0.00	86 1.41	7.7 0.16	9.[illegible] 0.27	0.6 0.01	0.1 0.01	0.1	1[illegible]		11[illegible]	1[illegible]	79	8			
4/1 1600	[illegible]	61	9.8	99	193	7.2	20 1.00	7.8 0.64	8.8 0.38	0.9 0.02	0.0 0.00	98 1.61	13 0.27	7.0 0.20	0.9 0.01	0.0 0.00	[illegible]	1[illegible]		121	[illegible]	82	2			
5/4 1215	45	61	9.7	98	250	7.3	28 1.40	9.4 0.77	10 0.44	1.0 0.03	0.0 0.00	132 2.16	14 0.29	8.2 0.23	0.1 0.00	0.0 0.00	0.1	15	Fe 0.[illegible]1 Al 0.0[illegible][d] PO_4 0.05	[illegible]	[illegible]	[illegible]	[illegible]	3		
6/1 1115	[illegible]	63	10.0	103	263	7.3	26 1.30	11 0.92	12 0.52	1.3 0.03	0.0 0.00	142 2.33	9.6 0.20	10 0.28	0.0 0.00	0.0 0.00	0.0	17	Fe [illegible]1 Al [illegible].05[d] PO_4 0.05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
7/13 12[illegible]	[illegible].6	68	11.3	123	265	7.9	26 1.30	12 1.02	13 0.57	1.5 0.04	0.0 0.00	149 2.44	7.[illegible] 0.15	8.2 0.23	1.2 0.02	0.1 0.01	[illegible]	16		[illegible]	[illegible]	[illegible]	[illegible]			
8/3 1105	[illegible].1	72	10.6	120	268	7.8	27 1.35	11 0.89	14 0.61	2.1 0.05	2 0.07	146 2.39	8.[illegible] 0.17	8.8 0.25	0.4 0.01	0.1 0.01	0.1	15	Tot Alk [illegible]	[illegible]	21	112	[illegible]			
9/7 1130	2.4	72	14.2	161	271	8.[illegible]	27 1.35	12 0.99	14 0.61	1.8 0.04	6 0.20	142 2.33	7.[illegible] 0.15	9.0 0.25	0.4 0.01	0.1 0.01	0.1	14	Tot Alk 124 Al [illegible] Zn [illegible].02[d] PO_4 [illegible]	161	20	[illegible]	[illegible]	2		
10/5 12[illegible]0	13	62	11.5	117	[illegible]	7.9	32 1.60	15 1.20	17 0.74	1.8 0.05	0.0 0.00	170 2.79	19 0.40	14 0.39	[illegible]	0.1 0.01	0.1	16		199	21	[illegible]	[illegible]			
11/2 1300	7.[illegible]	59	9.5	93	293	7.3	28 1.4[illegible]	14 1.12	15 0.65	1.4 0.04	0.[illegible] 0.00	158 2.[illegible]	13 0.27	8.5 0.24	[illegible]	0.1 0.01	0.1	14		172	20	[illegible]	[illegible]			
12/8 1300	7.[illegible]	49	10.8	94	[illegible]	7.3	30 1.50	13 1.10	17 0.74	3.0 0.08	0.0 0.00	165 2.[illegible]	12 0.25	14 0.39	[illegible]	[illegible]	0.1	16		1[illegible]	22	[illegible]	[illegible]			

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR) as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

KLAMATH RIVER NEAR COPCO (STA. 1)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/19 1500	2,800	41			191	7.5	1.12[c]		18 / 0.78		0.0 / 0.00	72 / 1.18		5.5 / 0.16						136[e]	41	56	0	15	Median 96.	
2/11 0830	3,130	39			170	7.2	1.16[c]		12 / 0.52		0.0 / 0.00	74 / 1.21		4.8 / 0.14			0.0			121[e]	31	58	0	10	Maximum 7,000.	
3/18 1000	2,250				197	7.0	1.31[c]		14 / 0.61		0.0 / 0.00	77 / 1.26		2.8 / 0.08			0.0			140[e]	32	66	3	4	Minimum 0.28	
4/9 1035	1,445	53	5.5	50	181	7.3	1.24[c]		12 / 0.52		0.0 / 0.00	72 / 1.18		3.0 / 0.08			0.1			129[e]	30	62	3	0		
5/17 1300	645	56	5.7	54	241	7.7	13 / 0.65	10 / 0.83	20 / 0.87	3.3 / 0.08	0.0 / 0.00	97 / 1.59	29 / 0.60	6.0 / 0.17	1.2 / 0.02	0.3 / 0.02	0.1	22	Fe 0.03 Al 0.14 [d] PO_4 0.40	153[f]	36	74	0	2		
6/16 0900	1,500	63	4.7	49	204	7.4	1.48[c]		16 / 0.70		0.0 / 0.00	98 / 1.60		3.5 / 0.10			0.1			146[e]	32	74	0	1		
7/14 0805	1,560	70	6.9	77	152	7.5	1.02[c]		13 / 0.57		0.0 / 0.00	78 / 1.28		4.8 / 0.14			0.1			108[e]	36	51	0	1		
8/4 1000	1,140		6.9		170	7.8	1.48[c]		12 / 0.52		0.0 / 0.00	91 / 1.49		6.0 / 0.17			0.1			121[e]	27	74	0	2		
9/11 1030	2,980	63	6.3	65	173	7.2	12 / 0.60	6.1 / 0.50	15 / 0.65	2.6 / 0.07	0.0 / 0.00	81 / 1.33	8.0 / 0.17	9.0 / 0.25	3.0 / 0.05	0.2 / 0.01	0.1	38	PO_4 0.75 Al 0.07 [d] Zn 0.04	134[f]	36	55	0	6		
10/14 0940	2,550	55	7.5	70	181	7.2	10 / 0.50	7.5 / 0.62	17 / 0.74	2.9 / 0.07	0.0 / 0.00	86 / 1.41	14 / 0.29	5.2 / 0.15	1.5 / 0.02	0.2 / 0.01	0.1	41		141[f]	38	56	0			
11/4 1530	2,550	51	8.2	73	153	7.0	0.98[c]		14 / 0.61		0.0 / 0.00	74 / 1.21		4.8 / 0.14			0.1			109[e]	26	49	0	6		
12/3 1130	2,350	43			145	7.0	1.04[c]		14 / 0.61		0.0 / 0.00	72 / 1.18		5.0 / 0.14			0.1			104[e]	37	52	0	20		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

KLAMATH RIVER ABOVE HAMBURG RESERVOIR SITE (STA. 1e)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO3)	Bicarbonate (HCO3)	Sulfate (SO4)	Chloride (Cl)	Nitrate (NO3)	Fluoride (F)	Boron (B)	Silica (SiO2)	Other constituents	Total dissolved solids in ppm[f]	Per cent sodium	Hardness as CaCO3 Total ppm	Hardness as CaCO3 N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	No Gage																									USGS
1/	Not Sampled																									
2/4 1145		41	12.3	97	197	7.4[a]	14 / 0.70	8.3 / 0.68	12 / 0.52	2.2 / 0.06	0.0 / 0.00	93 / 1.52	12 / 0.25	5.7 / 0.16	3.0 / 0.05	0.2 / 0.01	0.1	34		138	27	69	[illegible]			
3/3 1105		44	11.7	95	227	7.8[a]	17 / 0.85	9.1 / 0.75	16 / 0.70	1.6 / 0.04	0.0 / 0.00	96 / 1.57	27 / 0.56	5.0 / 0.14	1.2 / 0.02	0.2 / 0.01	0.1	27		151	[illegible]	[illegible]	[illegible]			
4/7 1330		54	11.1	103	249	7.9[a]	18 / 0.90	10 / 0.82	14 / 0.61	2.1 / 0.05	0.0 / 0.00	100 / 1.64	24 / 0.50	5.5 / 0.16	0.5 / 0.01	0.0 / 0.00	0.2	22		[illegible]	[illegible]	[illegible]	4			
5/13 1345		65	9.7	108	259	7.8[b]	19 / [illegible]	9.8 / 0.81	20 / 0.87	3.9 / 0.10	0.0 / 0.00	117 / 1.92	31 / 0.65	6.7 / 0.19	0.5 / 0.01	0.2 / 0.01	0.1	19	Fe 0.01 Al 0.12[d] PO4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
6/4 0900		68	9.4	108	213	7.7[a]	16 / 0.80	7.3 / 0.60	17 / 0.74	3.2 / 0.08	0.0 / 0.00	103 / 1.69	18 / 0.37	5.0 / 0.14	0.6 / 0.01	0.1 / 0.01	0.1	24		[illegible]	[illegible]	[illegible]	[illegible]			
7/14 1300		74	9.4	108	[illegible]	7.9[a]	12 / 0.60	8.8 / 0.72	13 / 0.57	[illegible] / 0.08	0.0 / 0.00	88 / 1.44	17 / 0.35	6.0 / 0.17	0.0 / 0.00	0.2 / 0.01	0.1	23		[illegible]	29	[illegible]	[illegible]			
8/11 1015		69	7.7	85	170	7.9[a]	13 / 0.65	6.7 / 0.55	13 / 0.57	3.6 / 0.09	0.0 / 0.00	[illegible] / 1.39	11 / 0.24	8.5 / 0.24	1.4 / 0.02	0.1 / 0.01	0.1	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
9/8 0900		68	[illegible]	87	204	7.9[a]	14 / [illegible]	[illegible]	16 / [illegible]	3.5 / [illegible]	[illegible]	102 / 1.67	15 / 0.31	[illegible] / 0.21	2.8 / 0.05	0.1 / [illegible]	0.1	38	PO4 [illegible] Fe [illegible][d]	157	31	74	[illegible]			
10/13 0900		56	10.9	105	[illegible]	7.9[a]	13 / [illegible]	7.7 / [illegible]	17 / [illegible]	2.8 / [illegible]	[illegible]	88 / 1.44	17 / 0.35	[illegible]	1.9 / [illegible]	0.1 / [illegible]	0.1	38		[illegible]	[illegible]	[illegible]	[illegible]			
11/10 1015		46	11.1	93	181	7.5[a]	11 / [illegible]	[illegible]	16 / [illegible]	2.5 / [illegible]	[illegible]	93 / [illegible]	[illegible]	[illegible]	2.2 / [illegible]	[illegible]	0.1	42		[illegible]	[illegible]	[illegible]				
12/8 0945		39	11.8	89	170	[illegible]	12 / 0.60	[illegible]	15 / 0.65	3.4 / 0.09	[illegible]	87 / 1.43	[illegible]	12 / [illegible]	1.9 / [illegible]	0.2 / [illegible]	0.1	34		[illegible]	[illegible]	[illegible]	[illegible]			

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr+6) reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL) or California Department of Water Resources (DWR), as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

KLAMATH RIVER NEAR KLAMATH (STA. 3)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/20 1630	20,600	44	12.4	101	136	7.3[a]	1.20[c]		5.2 / 0.23		0.0 / 0.00	70 / 1.15		3.5 / 0.10			0.1			88[e]	16	60	3	25	Median 6.2	
2/3 1715	23,900	44	12.4	101	131	7.5[a]	1.12[c]		4.1 / 0.18		0.0 / 0.00	67 / 1.10		2.5 / 0.07			0.0			85[e]	14	56	1	4	Maximum >7,000.	
3/4 1000	30,800	47	11.5	97	129	7.5[a]	1.20[c]		3.6 / 0.16		0.0 / 0.00	69 / 1.13		2.5 / 0.07			0.0			84[e]	12	60	3	60	Minimum 0.06	
4/7 1620	30,400	56	10.1	96	103	7.5[a]	1.08[c]		2.6 / 0.11		0.0 / 0.00	57 / 0.93		2.0 / 0.06			0.0			67[e]	9	54	7	85		
5/5 1650	13,200	54	9.1	84	125	7.9[b]	13 / 0.65	5.7 / 0.47	4.0 / 0.17	1.1 / 0.03	0.0 / 0.00	66 / 1.08	6.7 / 0.14	3.5 / 0.10	0.0 / 0.00	0.0 / 0.00	0.0	14	Fe 0.06 Al 0.09[d] PO_4 0.05	81[f]	13	56	2	10		
6/2 1200	9,880	62	9.8	101	125	7.5[a]	1.30[c]		4.5 / 0.20		0.0 / 0.00	70 / 1.15		2.5 / 0.07			0.1			81[e]	13	65	8	5		
7/15 0830	4,040	72	8.0	91	164	7.8[a]	1.44[c]		7.7 / 0.33		0.0 / 0.00	92 / 1.51		4.8 / 0.14			0.1			106[e]	19	72	0	1		
8/5 1015	2,930	73	7.9	91	175	7.5[a]	1.52[c]		7.9 / 0.34		0.0 / 0.00	96 / 1.57		3.2 / 0.09			0.1			113[e]	18	76	0	5		
9/1 1440	2,350	72	9.6	108	184	7.8[b]	16 / 0.80	9.7 / 0.80	11 / 0.48	2.2 / 0.06	0.0 / 0.00	100 / 1.64	11 / 0.23	6.0 / 0.17	1.4 / 0.02	0.1 / 0.01	0.1	22	Fe 0.03 Al 0.03[d] PO_4 0.30	129[f]	22	80	0	15		
10/7 1120	3,900	58	10.0	97	197	7.9[a]	1.55[c]		12 / 0.52		0.0 / 0.00	101 / 1.66		5.4 / 0.15			0.1			128[e]	25	78	0	2		
11/5 0805	3,000	50	10.3	91	202	7.5[a]	1.60[c]		11 / 0.48		0.0 / 0.00	105 / 1.72		6.5 / 0.18			0.1			131[e]	23	80	0	5		
12/10 0900	2,960	40	10.6	82	188	7.5[a]	1.70[c]		12 / 0.52		0.0 / 0.00	98 / 1.61		6.5 / 0.18			0.1			122[e]	23	85	5	20		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

KLAMATH RIVER NEAR SEIAD VALLEY (STA. 2b)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										
2/4 1300	4,790	44	12.1	98	200	7.3[a]	16 / 0.80	8.9 / 0.73	10 / 0.44	1.6 / 0.04	0.0 / 0.00	[illegible] / 1.64	11 / 0.23	5.3 / 0.15	2.3 / 0.04	0.2 / 0.01	[illegible]	30		134	22	77	[illegible]			
3/3 [illegible]	5,15[illegible]	46	12.[illegible]	100	21[illegible]	7.9[a]	17 / 0.85	12 / 0.98	14 / 0.61	1.6 / 0.04	[illegible].0 / 0.00	100 / 1.64	29 / [illegible]	4.5 / 0.13	1.[illegible] / [illegible]	0.2 / 0.01	[illegible]	27		115	25	[illegible]	0			
4/7 14[illegible]	4,530	52	[illegible]	97	[illegible]	7.7[a]	14 / [illegible]	6.1 / 0.50	[illegible] / 0.26	1.2 / 0.03	[illegible].0 / 0.00	84 / 1.38	9.6 / 0.20	[illegible] / 0.11	[illegible] / 0.00	[illegible] / 0.00	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
5/13 [illegible]	[illegible]	[illegible]	[illegible]	92	205	[illegible]	16 / 0.80	9.[illegible] / 0.74	13 / [illegible]	2.5 / [illegible]	[illegible].0 / 0.00	99 / 1.62	18 / 0.37	4.8 / 0.14	[illegible] / 0.01	[illegible] / 0.01	[illegible]	[illegible]	Fe [illegible] Al [illegible] [d]; PO_4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	2,24[illegible]	64	[illegible]	94	21[illegible]	7.7[a]	14 / [illegible]	9.[illegible] / [illegible]	17 / 0.74	3.5 / [illegible]	0.0 / 0.00	97 / 1.59	27 / [illegible]	[illegible] / 0.13	1.1 / 0.02	[illegible]	[illegible]	20		[illegible]	[illegible]	[illegible]	[illegible]			
7/14 1430	[illegible]	76	[illegible]	112	171	8.1[a]	14 / [illegible]	7.1 / [illegible]	12 / [illegible]	2.6 / [illegible]	4 / 0.13	83 / [illegible]	7 / 0.15	[illegible] / 0.17	[illegible] / 0.00	[illegible]	0.[illegible]	[illegible]	Tot. Alk 91	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	1,22[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8.1[a]	[illegible]	7.2 / 0.59	14 / 0.61	[illegible]	[illegible].0 / [illegible]	[illegible] / 1.62	6 / [illegible]	[illegible]	[illegible]	[illegible] / 0.01	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
9/8 1110	[illegible]	[illegible]	[illegible]	97	224	[illegible]	[illegible]	11 / [illegible]	17 / [illegible]	[illegible]	[illegible].0 / 0.00	118 / 1.93	20 / 0.42	2 / [illegible]	2 / [illegible]	[illegible] / 0.01	[illegible]	[illegible]	Fe [illegible] [d]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	1,50[illegible]	[illegible]	[illegible]	[illegible]	189	[illegible]	14 / [illegible]	[illegible]	17 / [illegible]	[illegible]	[illegible]	88 / 1.44	13 / 0.27	[illegible]	1.7 / [illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	2,42[illegible]	47	11.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16 / [illegible]	2.2 / [illegible]	[illegible]	[illegible]	[illegible]	6.5 / [illegible]	2.6 / [illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
12/8 [illegible]	2,66[illegible]	38	12.2	[illegible]	172	[illegible]	12 / 0.60	6.8 / 0.56	[illegible] / 0.65	3.8 / 0.10	[illegible]	87 / [illegible]	[illegible]	[illegible]	1.6 / [illegible]	[illegible]	[illegible]	34		131	34	[illegible]	[illegible]			

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as 0.0 / 0.00 except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

KLAMATH RIVER AT SOMESBAR (STA. 2)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																									Median 17.	USGS
1/20 0940	10,700	41	13.3	96	148	7.3	1.24[c]		7.6/0.33		0.0/0.00	72/1.18		3.8/0.11			0.0			100[e]	21	62	3	25	Maximum 620.	
2/3 1010	11,900	41	13.1	102	142	7.6	1.12[c]		5.6/0.24		0.0/0.00	74/1.21		3.5/0.10			0.0			96[e]	18	56	0	4	Minimum 0.62	
3/5 0930	12,200	47	11.9	101	149	7.4	1.32[c]		5.8/0.25		0.0/0.00	75/1.23		2.8/0.08			0.0			101[e]	16	66	4	35		
4/8 1100	12,000	50	11.3	100	108	7.4	1.16[c]		1.8/0.08		0.0/0.00	60/0.98		2.5/0.07			0.0			73[e]	6	58	9	40		
5/6 1030	6,360	53	10.9	100	141	7.4	13/0.65	7.2/0.59	5.2/0.23	0.9/0.02	0.0/0.00	74/1.21	8.6/0.18	3.8/0.11	0.5/0.01	0.0/0.00	0.0	15	Fe 0.06 Al 0.13 [d] PO_4 0.05	90[f]	15	62	1	100		
6/3 0715	5,310	60	10.1	100	134	7.5	1.16[c]		5.8/0.25		0.0/0.00	78/1.28		3.0/0.08			0.0			91[e]	18	58	0	1		
7/15 1545	2,740	78	8.1	98	162	8.0	1.32[c]		10/0.44		2/0.07	86/1.41		4.8/0.14			0.1		Tot. Alk 90	110[e]	25	66	0	1		
8/6 1015	2,540	75	8.3	97	194	7.8	1.72[c]		7.4/0.32		0.0/0.00	100/1.64		4.8/0.14			0.2			132[e]	16	86	4	5		
9/10 0850	2,630	73	8.7	100	208	7.7	17/0.85	8.1/0.67	16/0.70	2.3/0.06	0.0/0.00	110/1.80	11/0.23	6.0/0.17	2.0/0.03	0.2/0.01	0.1	32	Fe 0.04 Al 0.10 [d] PO_4 0.45	149[f]	31	76	0	15		
10/8 1545	3,510	56	10.2	97	187	7.9	1.31[c]		15/0.65		0.0/0.00	94/1.54		5.5/0.16			0.1			127[e]	34	65	0	4		
11/6 0800	2,370	46	11.6	97	188	7.3	1.32[c]		14/0.61		0.0/0.00	90/1.48		6.2/0.17			0.0			128[e]	32	66	0	15		
12/	Not Sampled																									

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

MAD RIVER NEAR ARCATA (STA. 6a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																									Median [illegible] 2	USGS
1/20 1410	1,330	47	11.6	98	131	7.3	18 / 0.90	3.6 / 0.30	4.0 / 0.17	0.6 / 0.02	0.0 / 0.00	68 / 1.11	7.7 / 0.16	4.4 / 0.12	0.5 / 0.01	0.2 / 0.01	0.1	5.9		78[f]	12	60	4		Maximum 7,000	
2/3 1450	1,540	47	12.5	106	114	7.3	15 / 0.75	3.0 / 0.25	3.3 / 0.14	0.9 / 0.02	0.0 / 0.00	57 / 0.93	5.4 / 0.11	4.0 / 0.11	0.1 / 0.00	0.1 / 0.01	0.1	6.1		66[f]	12	50	3		Minimum [illegible]	
3/4 1200	1,880	48	11.2	96	[illegible].1	7.3	14 / 0.70	1.7 / 0.14	2.8 / 0.12	0.8 / 0.02	0.0 / 0.00	50 / 0.82	4.8 / 0.10	2.7 / 0.08	0.5 / 0.01	0.1 / 0.01	0.0	12		64[f]	12	42	[illegible]	[illegible]		
4/8 0830	1,[illegible]	54	10.8	100	114	7.3	15 / 0.75	3.0 / 0.25	2.8 / 0.12	0.6 / 0.02	0.0 / 0.00	60 / 0.98	3.8 / 0.08	3.0 / 0.08	0.0 / 0.00	0.0 / 0.00	0.0	12		[illegible][f]	11	[illegible]	[illegible]			
5/5 1445	345	58	9.8	[illegible]	155	7.[illegible]	22 / 1.10	4.4 / 0.36	3.5 / 0.15	0.5 / 0.01	0.0 / 0.00	79 / 1.29	11 / 0.23	3.0 / 0.08	[illegible].1 / 0.00	[illegible].0 / 0.00	0.1	8.8	Al [illegible] PO_4 [illegible][d]	[illegible][f]	[illegible]	73	[illegible]	[illegible]		
6/2 1600	1[illegible]7	62	[illegible]	102	197	7.5	28 / 1.[illegible]	5.2 / 0.43	5.2 / 0.23	1.4 / 0.04	0.0 / 0.00	104 / 1.70	11 / 0.23	5.0 / 0.14	0.1 / 0.00	0.0 / 0.00	[illegible]	7.6	Fe 0.02 Al [illegible].02 Zn 0.02 PO_4 0.30[d]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
7/14 1630	29	71	9.7	109	235	7.7	35 / 1.75	6.4 / 0.53	6.[illegible] / 0.28	1.2 / 0.03	[illegible] / 0.00	130 / 2.13	14 / 0.29	[illegible].5 / 0.1[illegible]	1.3 / 0.02	[illegible].1 / 0.01	[illegible]	10		142[f]	[illegible]	114	[illegible]			
8/5 1500	1[illegible]	72	9.5	108	239	7.5	37 / 1.85	5.2 / 0.43	6.5 / 0.28	1.3 / 0.03	[illegible] / 0.00	133 / 2.18	11 / 0.23	5.[illegible] / 0.14	[illegible].3 / 0.00	[illegible] / 0.00	[illegible]	12		144[f]	[illegible]	114	[illegible]			
9/9 1430	16	[illegible]	[illegible]	1[illegible]8	250	7.[illegible]	36 / 1.80	6.8 / [illegible]	6.1 / [illegible]	1.5 / 0.04	[illegible]	138 / 2.26	8.[illegible] / [illegible]	6.8 / 0.19	[illegible].2 / [illegible]	[illegible] / 0.00	[illegible]	1[illegible]	PO_4 [illegible] Al [illegible] [illegible] [illegible].03[d]	[illegible][f]	[illegible]	1[illegible]	[illegible]	[illegible]		
10/7 1640	24	60	9.6	[illegible]	261	7.5	41 / 2.[illegible]	8.1 / [illegible]	7.7 / 0.33	1.2 / 0.03	[illegible] / [illegible]	14[illegible] / 2.39	23 / 0.48	[illegible] / [illegible]	[illegible].4 / 0.01	[illegible].1 / [illegible]	[illegible].1	13		1[illegible][f]	[illegible]	[illegible]	[illegible]			
11/5 1315	35	57	[illegible].3	99	2[illegible]3	7.1	2.15[c]		6.9 / 0.30		[illegible] / 0.00	131 / 2.1[illegible]		5.6 / 0.1[illegible]			[illegible]			174[e]	12	1[illegible]	[illegible]	[illegible]		
12/[illegible] 1100	27	52	1[illegible].6	[illegible]	273	7.3	2.55[c]		[illegible] / [illegible]		[illegible] / [illegible]	14[illegible] / 2.39		6.[illegible] / [illegible]			[illegible]2			[illegible][e]	[illegible]	1[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, [illegible]

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWDSC), Los Angeles Department of Water and Power (LADWP), City of Los Angeles Department of Public Health (LADPH), City of Long Beach Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

MATTOLE RIVER NEAR PETROLIA (STA. 7a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total[f] dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																									Median 2.3	USGS
1/21 1245	820	47	11.2	95	138	7.3[a]	17 / 0.85	3.6 / 0.30	5.4 / 0.23	0.9 / 0.02	0.0 / 0.00	62 / 1.02	12 / 0.25	4.8 / 0.14	0.4 / 0.01	0.2 / 0.01	0.0	13		88	16	57	6		Maximum 2,400.	
2/4 1200	1,270	48	11.1	96	132	7.4[a]	15 / 0.75	3.8 / 0.31	5.6 / 0.24	1.1 / 0.03	0.0 / 0.00	60 / 0.98	11 / 0.23	4.1 / 0.14	0.1 / 0.00	0.1 / 0.01	0.1	15		87	18	53	4		Minimum 0.06	
3/3 1545	1,050	52	10.8	98	135	7.3[b]	16 / 0.80	3.6 / 0.30	5.4 / 0.23	0.7 / 0.02	0.0 / 0.00	65 / 1.07	8.6 / 0.18	3.8 / 0.11	0.4 / 0.01	0.1 / 0.01	0.0	15		86	17	55	2	PO		
4/7 1230	820	58	10.3	100	142	7.3[a]	17 / 0.85	3.6 / 0.30	5.2 / 0.23	0.4 / 0.01	0.0 / 0.00	65 / 1.07	8.6 / 0.18	4.5 / 0.13	0.0 / 0.00	0.0 / 0.00	0.0	15		86	17	57	4			
5/7 1445	289	68	8.2	89	182	8.0[b]	24 / 1.20	4.9 / 0.40	8.3 / 0.36	1.2 / 0.03	0.0 / 0.00	85 / 1.39	20 / 0.42	5.2 / 0.15	0.0 / 0.00	0.0 / 0.00	0.1	9.7	Fe 0.04 PO_4 0.05[d] Al 0.08	115	18	80	10	30		
6/2 0800	155	64	9.2	96	213	7.3[a]	28 / 1.40	5.4 / 0.44	7.9 / 0.34	1.1 / 0.03	0.0 / 0.00	104 / 1.70	17 / 0.35	5.9 / 0.17	0.2 / 0.00	0.0 / 0.00	0.0	11	Fe 0.01 PO_4 0.05[d] Al 0.02	128	15	92	7	1		
7/14 1350	32	76	11.5	136	225	8.2[a]	30 / 1.50	4.1 / 0.34	8.8 / 0.38	1.3 / 0.03	0.0 / 0.00	110 / 1.80	9.0 / 0.19	6.0 / 0.17	2.0 / 0.03	0.1 / 0.01	0.0	10		125	17	92	2			
8/4 1730	30	74	10.0	116	205	8.0[a]	28 / 1.40	5.8 / 0.48	9.0 / 0.39	1.5 / 0.04	1 / 0.03	99 / 1.62	21 / 0.44	4.8 / 0.14	0.2 / 0.00	0.2 / 0.01	0.1	2.9	Tot. Alk. 101	124	17	94	11			
9/9 1120	28	73	9.9	114	255	7.8[a]	35 / 1.75	6.2 / 0.51	9.5 / 0.41	1.8 / 0.05	0.0 / 0.00	121 / 1.98	23 / 0.48	6.0 / 0.17	0.1 / 0.00	0.2 / 0.01	0.1	7.4	Al 0.04 Cu 0.03[d] PO_4 0.00	149	15	113	14	2		
10/6 1415	32	60	10.0	100	280	7.7[a]	42 / 2.10	7.1 / 0.58	9.6 / 0.42	1.8 / 0.05	0.0 / 0.00	130 / 2.13	40 / 0.83	7.0 / 0.20	0.3 / 0.00	0.1 / 0.01	0.1	12		184	13	134	27			
11/4 1240	45	57	12.7	122	276	8.1[a]	40 / 2.00	6.3 / 0.52	10 / 0.44	1.3 / 0.03	0.0 / 0.00	130 / 2.13	31 / 0.65	4.8 / 0.14	0.0 / 0.00	0.2 / 0.01	0.1	5.8		164	15	126	19			
12/	Not Sampled																									

Mineral constituents in parts per million / equivalents per million.

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

NAVARRO RIVER NEAR NAVARRO (STA. 8b)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1949																									Median 2.1	USGS
1/22 [illegible]	240	46	11.3	95	211	7.[illegible]	22 / 1.10	7.8 / 0.64	10 / 0.44	1.1 / 0.03	0.0 / 0.00	105 / 1.72	12 / 0.25	9.0 / 0.25	0.7 / 0.01	0.1 / 0.01	0.1	17		132	20	87	1		Maximum 620	
2/5 [illegible]	282	[illegible]	11.[illegible]	[illegible]	205	7.5	21 / 1.05	7.5 / 0.62	9.2 / 0.40	1.0 / 0.03	0.0 / 0.00	102 / 1.67	11 / 0.23	8.5 / 0.24	0.1 / 0.00	0.1 / 0.01	0.1	19		128	19	83	0		Minimum <0.045	
3/2 [illegible]	[illegible]	[illegible]	[illegible]	97	188	7.2	18 / 0.90	7.8 / 0.64	8.5 / 0.37	1.1 / 0.03	0.0 / 0.00	98 / 1.61	7.7 / 0.16	8.0 / 0.23	0.6 / 0.01	0.1 / 0.01	0.1	21		121	19	77	0	4		
[illegible]	[illegible]	[illegible]	9.[illegible]	[illegible]	207	7.2	21 / 1.05	7.2 / 0.59	9.7 / 0.42	1.2 / 0.03	0.0 / 0.00	103 / 1.69	9.6 / 0.20	7.5 / 0.21	0.9 / 0.01	0.0 / 0.00	0.0	17		125	[illegible]	82	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	27 / 1.35	9.[illegible] / 0.[illegible]	24 / 1.04	1.5 / 0.04	0.0 / 0.00	132 / 2.16	15 / 0.31	29 / 0.82	0.0 / 0.00	0.0 / 0.00	0.2	17	Fe 0.02 Al 0.03[d] PO_4 0.05	188	32	128	[illegible]	2		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	261	7.3	26 / 1.30	10 / 0.86	13 / 0.57	1.4 / 0.04	0.0 / 0.00	141 / 2.31	6.7 / 0.14	10 / 0.28	0.0 / 0.00	0.0 / 0.00	0.0	15	Fe 0.02 Al 0.[illegible][d] Zn 0.01 PO_4 0.05	151	21	108	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	265	7.6	27 / 1.35	11 / 0.91	14 / 0.61	1.5 / 0.04	0.0 / 0.00	153 / 2.51	9.0 / 0.19	8.0 / 0.23	1.3 / 0.02	0.1 / 0.01	0.0	16		163	21	114	[illegible]			
[illegible]	9.[illegible]	[illegible]	9.1	102	259	7.4	28 / 1.40	9.[illegible] / 0.78	14 / 0.61	2.[illegible] / 0.05	[illegible] / 0.00	147 / 2.41	8.[illegible] / 0.17	8.[illegible] / 0.24	[illegible]1 / 0.00	0.1 / 0.01	[illegible]2	15		157	21	109	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28 / 1.40	10 / 0.[illegible]	14 / 0.61	1.9 / 0.05	[illegible] / 0.00	147 / 2.41	9.[illegible] / 0.19	9.8 / 0.28	[illegible]3 / 0.00	0.1 / 0.01	0.1	15	PO_4 0.00 Zn 0.02[d] Al 0.12	160	21	113	0	2		
[illegible]	14	[illegible]	[illegible]	[illegible]	[illegible]	7.[illegible]	30 / 1.5[illegible]	12 / 1.02	1[illegible] / 0.65	2.0 / 0.05	0.0 / 0.00	15[illegible] / 2.[illegible]	25 / 0.52	8.5 / 0.24	0.7 / 0.01	0.1 / 0.01	0.3	17		185	20	126	3			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	279	7.3	29 / 1.45	11 / 0.91	15 / 0.65	1.2 / 0.03	0.0 / 0.00	155 / 2.54	7.[illegible] / 0.1[illegible]	8.5 / 0.24	0.3 / 0.00	0.2 / 0.01	0.2	18		166	21	118	[illegible]			
12/[illegible] [illegible]	15	[illegible]	[illegible]	91		7.3	Broken in transit																			

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-1
ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

NOYO RIVER NEAR FORT BRAGG (STA. 10c)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/22 0820	74	46	11.0	92	134	7.1	12 / 0.60	4.9 / 0.40	7.8 / 0.34	0.9 / 0.02	0.0 / 0.00	64 / 1.05	5.2 / 0.11	8.5 / 0.24	0.1 / 0.00	0.1 / 0.01	0.1	17		89[f]	25	50	0		Median 0.56	
2/5 1010	124	46	11.3	95	123	7.2	12 / 0.60	3.8 / 0.31	8.5 / 0.37	0.6 / 0.02	0.0 / 0.00	59 / 0.97	4.8 / 0.10	8.8 / 0.25	0.0 / 0.00	0.1 / 0.01	0.0	20		88[f]	28	45	0		Maximum 2.400	
3/3 1000	142	48	10.9	94	113	7.1	7.6 / 0.38	5.6 / 0.46	7.0 / 0.30	0.6 / 0.02	0.0 / 0.00	53 / 0.87	5.8 / 0.12	6.5 / 0.18	0.6 / 0.01	0.1 / 0.01	0.0	21		81[f]	26	42	0		Minimum <0.045	
4/2 0830	244	54	10.4	97	115	7.2	12 / 0.60	2.9 / 0.24	7.1 / 0.31	0.8 / 0.02	0.0 / 0.00	56 / 0.92	3.8 / 0.08	5.5 / 0.16	0.4 / 0.01	0.0 / 0.00	0.0	19		80[f]	26	42	0			
5/4 1645	32	59	9.9	97	149	7.2	14 / 0.70	4.4 / 0.36	9.0 / 0.39	0.7 / 0.02	0.0 / 0.00	71 / 1.16	5.8 / 0.12	7.8 / 0.22	0.1 / 0.00	0.0 / 0.00	0.1	19	Fe 0.06 Al 0.01[d] PO_4 0.05	96[f]	27	53	0	1		
6/1 1600	18	60	9.9	99	158	7.2	15 / 0.75	4.7 / 0.39	9.8 / 0.43	1.2 / 0.03	0.0 / 0.00	77 / 1.26	5.4 / 0.11	9.0 / 0.25	0.0 / 0.00	0.0 / 0.00	0.0	17	Fe 0.03 Al 0.02[d] PO_4 0.00	100[f]	27	57	0	1		
7/13* 1700	6.6	70	9.0	100	440	7.3	18 / 0.90	9.0 / 0.74	55 / 2.39	3.1 / 0.08	0.0 / 0.00	84 / 1.38	13 / 0.27	82 / 2.31	1.0 / 0.02	0.1 / 0.01	0.0	18		240[f]	58	82	13			
8/4* 0730	3.8	63	9.6	99	493	7.2	18 / 0.90	10 / 0.86	63 / 2.74	3.9 / 0.10	0.0 / 0.00	82 / 1.34	15 / 0.31	99 / 2.79	0.0 / 0.00	0.1 / 0.01	0.1	18		267[f]	60	88	21			
9/7* 1630	2.9	67	9.3	100	5,610	7.3	56 / 2.79	118 / 9.69	912 / 38.67	52 / 1.33	0.0 / 0.00	84 / 1.38	17 / 0.35	1,760 / 49.63	1.3 / 0.02	0.1 / 0.01	0.5	19	Al 0.29 PO_4 0.00[d]	2,980[f]	74	624	555	4		
10/5* 1645	4.8	60	9.5	95	306	7.3	14 / 0.70	11 / 0.94	31 / 1.35	2.9 / 0.07	0.0 / 0.00	86 / 1.41	14 / 0.29	48 / 1.35	0.2 / 0.00	0.1 / 0.01	0.1	22		185[f]	44	82	11			
11/3 1100	4.5	52	9.6	86	174	7.2	16 / 0.80	5.4 / 0.44	13 / 0.57	0.9 / 0.02	0.0 / 0.00	85 / 1.39	5.0 / 0.10	11 / 0.31	0.3 / 0.00	0.2 / 0.01	0.1	18		112[f]	31	62	0			
12/9 0800	6.3	41	10.9	85	165	7.3	1.34[c]		11 / 0.48		0.0 / 0.00	86 / 1.41		8.0 / 0.23			0.3			113[e]	26	67	0	10		

* Sample influenced by sea water, not included in evaluation.

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

OUTLET CREEK NEAR LONGVALE (STA. 5b)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										[illegible]
1/7 1400	1,730	55	10.8	101	125	7.6[b]	13 0.65	4.3 0.35	4.6 0.20	1.6 0.04	0.0 0.00	60 0.98	6.7 0.14	4.2 0.12	1.1 0.02	0.1 0.01	0.2	10		76[f]	16	[illegible]	[illegible]			
2/17 1220	4,510				58.2	7.2[a]	4.8 0.24	2.9 0.24	2.6 0.11	1.3 0.03	0.0 0.00	29 0.48	3.8 0.08	2.2 0.06	0.3 0.00	0.1 0.01	0.1	10		42[f]	18	24	[illegible]			
3/5 1200	146	54			137	7.8[b]	13 0.65	6.0 0.49	7.0 0.30	0.7 0.02	0.0 0.00	66 1.08	12 0.25	5.8 0.16	[illegible]	0.0 0.00	0.2	13		91[f]	21	[illegible]	[illegible]			
4/9 1300	112	60			172	7.5[b]	15 0.75	8.9 0.73	6.0 0.26	0.4 0.01	0.0 0.00	94 1.54	1.9 0.04	6.0 0.17	[illegible]	0.0 0.00	0.3	11		[illegible][f]	[illegible]	74	[illegible]			
5/14 1700	22	68	8.3	90	214	8.2[b]	27 1.35	5.2 0.43	11 0.48	1.5 0.04	0.0 0.00	116 1.90	6.7 0.14	9.0 0.25	0.0 0.00	0.1 0.01	0.7	9	Al [illegible] PO_4 [illegible] [d]	127[f]	21	[illegible]	[illegible]	[illegible]		
6/10 0900	7.4	64	7.9	[illegible]	252	8.1[b]	[illegible] 1.40	8.8 0.72	12 0.52	1.9 0.05	0.0 0.00	134 2.20	7.7 0.16	12 0.34	0.0 0.00	0.1 0.01	1.2	[illegible]		148[f]	[illegible]	[illegible]	[illegible]			
7/14 1155	.8	80	7.7	94	288	8.3[b]	30 [illegible]	11 [illegible]	15 [illegible]	1.9 0.05	2 [illegible]	145 2.38	11 0.23	16 0.45	0.5 0.01	0.1 0.01	1.2	5.[illegible]	Tot Alk [illegible]49	[illegible][f]	21	[illegible]	[illegible]			
8/5 1325	[illegible]	81	9.5	118	302	8.[illegible][a]	[illegible][c]		17 0.74		[illegible] 0.00	149 2.44		22 0.62			2.[illegible]			[illegible][e]	24	[illegible]	[illegible]	[illegible]		
9/15 0730	.8	60	8.3	83	327	8.[illegible][a]	29 [illegible]	13 [illegible]	[illegible]	1.9 [illegible]	[illegible] 0.00	[illegible] 2.52	6.[illegible] 0.13	30 [illegible]	[illegible] 0.00	[illegible]	2.3	13	PO_4 0.00 Al [illegible] Zn 0.05 [d]	191[f]	[illegible]	[illegible]	[illegible]	2		
10/7 0845	1.2	57	7.5	72	326	8.1[b]	[illegible][c]		16 0.70		[illegible] 0.00	[illegible] [illegible]		22 0.62			1.[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
11/5 0910	2.6	49	9.7	[illegible]	382	7.9[b]	[illegible][c]		21 0.91		[illegible] 0.00	178 2.92		32 [illegible]			1.4			[illegible][e]	22	[illegible]	10	[illegible]		
12/9 1510	3.4	38	12.8	[illegible]	390	[illegible][b]	[illegible][c]		24 1.04		[illegible] 0.00	186 [illegible]		31 [illegible]			1.2			234[e]	24	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. [illegible]

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); [illegible]

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

REDWOOD CREEK AT ORICK (STA. 3b)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																									Median 23.	USGS
1/20 1550	955	47	11.3	96	81.3	7.1[a]	11 / 0.55	1.6 / 0.13	3.0 / 0.13	0.0 / 0.00	0.0 / 0.00	34 / 0.56	5.8 / 0.12	5.8 / 0.16	0.2 / 0.00	0.0 / 0.00	0.0	4.7		49[f]	16	34	6		Maximum 7,000.+	
2/3 1620	1,550	47	11.5	98	72.7	7.2[a]	8.8 / 0.44	1.6 / 0.13	3.1 / 0.13	0.1 / 0.00	0.0 / 0.00	30 / 0.49	2.9 / 0.06	5.4 / 0.15	0.0 / 0.00	0.1 / 0.01	0.0	4.8		42[f]	18	29	4		Minimum 0.62	
3/4 1115	1,000	48	11.1	95	75.8	7.2[a]	10 / 0.50	1.7 / 0.14	2.6 / 0.11	0.5 / 0.01	0.0 / 0.00	33 / 0.54	4.8 / 0.10	4.5 / 0.13	0.5 / 0.01	0.0 / 0.00	0.0	12		53[f]	14	32	5	48		
4/7 1500	1,100	58	9.8	96	76.8	7.2[a]	10 / 0.50	1.7 / 0.14	2.3 / 0.10	0.3 / 0.01	0.0 / 0.00	32 / 0.52	4.8 / 0.10	4.2 / 0.12	0.2 / 0.00	0.0 / 0.00	0.0	4.9		44[f]	13	32	6			
5/6 0815	320	60	8.4	84	106	7.5[b]	15 / 0.75	1.6 / 0.13	2.0 / 0.09	0.9 / 0.02	0.0 / 0.00	48 / 0.79	1.9 / 0.04	5.8 / 0.16	0.0 / 0.00	0.0 / 0.00	0.0	7.6	Fe 0.07 Al 0.06 [d] PO_4 0.00	59[f]	9	44	5	10		
6/2 1045	142	58	8.8	85	121	7.2[a]	18 / 0.90	1.7 / 0.14	3.8 / 0.17	0.8 / 0.02	0.0 / 0.00	57 / 0.93	7.3 / 0.15	6.2 / 0.17	0.2 / 0.00	0.0 / 0.00	0.0	6.9	Fe 0.05 Al 0.01 [d] PO_4 0.05 Zn 0.03	73[f]	14	52	5	1		
7/15 0720	58	61	7.6	77	139	7.0[a]	21 / 1.05	1.8 / 0.15	4.7 / 0.20	1.0 / 0.03	0.0 / 0.00	64 / 1.05	7.0 / 0.15	6.5 / 0.18	1.8 / 0.03	0.00 / 0.00	0.0	10		86[f]	14	60	8			
8/5 0915	31	61	7.8	78	131	7.2[a]	18 / 0.90	2.2 / 0.18	5.5 / 0.24	0.9 / 0.02	0.0 / 0.00	58 / 0.95	7.0 / 0.15	6.5 / 0.18	0.5 / 0.01	0.1 / 0.01	0.1	7.8		78[f]	18	54	6			
9/1 1330	18	68	9.4	102	131	7.0[b]	17 / 0.85	4.3 / 0.35	5.5 / 0.24	1.0 / 0.03	0.0 / 0.00	73 / 1.20	4.0 / 0.08	6.2 / 0.17	0.4 / 0.01	0.1 / 0.01	0.0	7.8	Fe 0.07 PO_4 0.00 [d]	82[f]	16	60	0	15		
10/7 1040	23	56	9.8	93	132	7.1[a]	22 / 1.10	2.7 / 0.22	6.7 / 0.29	0.3 / 0.01	0.0 / 0.00	62 / 1.02	13 / 0.27	10 / 0.28	0.2 / 0.00	0.1 / 0.01	0.0	10		96[f]	18	66	15			
11/4 1605	58	57	10.2	98	151	6.9[a]	1.20[c]		7.3 / 0.32		0.0 / 0.00	54 / 0.89		6.8 / 0.19			0.1			90[e]	21	60	16	15		
12/10 1000	39	50	10.9	96	144	7.2[a]	1.22[c]		6.9 / 0.30		0.0 / 0.00	64 / 1.05		7.0 / 0.20			0.0			86[e]	20	61	9	4		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

RUSSIAN RIVER AT GUERNEVILLE (STA. 10)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																									[illegible]	[illegible]
1/22 1430	1,100	52	10.1	[illegible]	[illegible]	7.3	2.50[c]		9.[illegible] / 0.39		[illegible] / 0.00	136 / 2.23		8.8 / 0.25			0.4			154[e]	13	124	[illegible]	[illegible]	Maximum [illegible]	
[illegible] 174[illegible]	1,[illegible]	[illegible]	11.3	[illegible]	260	7.[illegible]	2.28[c]		9.0 / 0.39		[illegible] / 0.00	129 / 2.11		8.[illegible] / 0.23			[illegible]			156[e]	[illegible]	114	8	2	Minimum [illegible]	
[illegible]	2,030	[illegible]	[illegible]	[illegible]	261	7.1	2.24[c]		9.1 / 0.40		[illegible] / 0.00	132 / 2.16		7.[illegible] / 0.21			[illegible]			161[e]	15	112	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible][c]		[illegible] / [illegible]		[illegible] / [illegible]	111 / 1.82		6.2 / 0.17			0.2			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.55	14 / 1.16	[illegible] / [illegible]	1[illegible] / 0.0[illegible]	[illegible] / 0.00	16[illegible] / 2.64	13 / 0.27	7.4 / 0.21	0.4 / 0.01	0.0 / 0.00	0.4	[illegible]	Fe [illegible] Al [illegible] Mn [illegible][d]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible] / 0.42		[illegible] / [illegible]	177 / 2.90		[illegible] / [illegible]			0.4			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.7	[illegible][c]		9.4 / [illegible]		[illegible] / [illegible]	[illegible] / [illegible]		[illegible] / [illegible]			0.4			[illegible][e]	14	124	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.6	[illegible][c]		[illegible] / 0.37		[illegible] / 0.00	[illegible] / 2.52		[illegible] / 0.16			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	76	6.8	80	254	7.4	2[illegible] / 1.30	13 / 1.10	9.4 / 0.41	1.[illegible] / 0.04	[illegible] / 0.00	[illegible] / 2.41	[illegible] / 0.19	[illegible] / 0.1[illegible]	[illegible] / 0.01	[illegible] / 0.01	[illegible]	14	Al 0.12 Mn [illegible][d]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	8.3	88	285	[illegible]	2.64[c]		[illegible] / [illegible]		[illegible] / 0.00	[illegible] / 2.70		7.[illegible] / [illegible]			[illegible]			[illegible][e]	16	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	9.6	[illegible]	238	7.[illegible]	2.17[c]		8.1 / 0.3[illegible]		[illegible] / [illegible]	137 / 2.25		5.1 / 0.14			0.4			141[e]	14	[illegible]	[illegible]	4		
[illegible]	[illegible]	[illegible]	10.3	88	[illegible]	7.4	[illegible][c]		9.5 / 0.42		[illegible] / 0.00	144 / 2.36		[illegible] / [illegible]			[illegible]			1[illegible]2[e]	15	118	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-1
ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

RUSSIAN RIVER NEAR HEALDSBURG (STA. 9)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																									Median 23.	USGS
1/7 0930	1,160	50	10.1	90	190	7.3	1.56[c]		6.9 / 0.30		0.0 / 0.00	75 / 1.23		7.5 / 0.21			0.2			112[e]	16	78	16	40	Maximum 2,100.	
2/6 0820	641	51	10.1	90	253	7.5	2.28[c]		8.2 / 0.36		0.0 / 0.00	130 / 2.13		5.5 / 0.16			0.06			149[e]	14	114	7	5	Minimum 0.13	
3/2 1415	1,280	58	9.5	92	248	7.5	2.28[c]		7.2 / 0.31		0.0 / 0.00	130 / 2.13		5.8 / 0.16			0.3			146[e]	12	114	7	20		
4/1 1330	947	61	9.1	92	207	7.5	1.92[c]		7.1 / 0.31		0.0 / 0.00	110 / 1.80		5.5 / 0.16			0.2			122[e]	14	96	6	40		
5/11 1610	185	77	9.0	107	282	7.9	25 / 1.25	16 / 1.35	8.4 / 0.37	1.4 / 0.04	0.0 / 0.00	159 / 2.61	8.6 / 0.18	7.0 / 0.20	1.5 / 0.02	0.1 / 0.01	0.5	13	Fe 0.02 Al 0.07[d] PO_4 0.05	160[f]	12	130	0	30		
6/11 1145	145	72	8.5	97	276	7.7	2.60[c]		8.8 / 0.38		0.0 / 0.00	158 / 2.59		7.0 / 0.20			0.5			163[e]	13	130	0	10		
7/1 1445	170	75	8.5	90	253	7.7	2.34[c]		8.8 / 0.38		0.0 / 0.00	146 / 2.39		4.8 / 0.14			0.4			149[e]	14	117	0	10		
8/12 1545	163	77	8.5	102	241	7.9	2.24[c]		8.7 / 0.38		0.0 / 0.00	141 / 2.31		4.5 / 0.13			0.6			142[e]	15	112	0	3		
9/4 0630	200	68	7.6	83	234	7.7	23 / 1.15	12 / 0.99	8.5 / 0.37	1.5 / 0.04	0.0 / 0.00	136 / 2.23	7.2 / 0.15	4.2 / 0.12	0.0 / 0.00	0.0 / 0.00	0.4	11	Fe 0.03 Al 0.02[d] PO_4 0.00 Cu 0.02	135[f]	15	107	0	3		
10/15 0900	313	63	8.0	83	224	7.5	2.06[c]		7.2 / 0.31		0.0 / 0.00	128 / 2.10		6.0 / 0.17			0.4			132[e]	13	103	0	8		
11/4 1615	313	61	8.3	84	344	7.5	2.84[c]		19 / 0.83		0.0 / 0.00	179 / 2.93		14 / 0.39			0.4			204[e]	23	142	0	5		
12/3 1530	337	54	10.6	98	227	7.9	2.10[c]		7.7 / 0.33		0.0 / 0.00	128 / 2.10		5.2 / 0.15			0.5			134[e]	14	105	0	3		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

RUSSIAN RIVER NEAR HOPLAND (STA. 8a)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																									Median [illegible]	[illegible]
1/7 0800	278	49	9.6	84	172	7.3[a]	1.40[c]		7.6 / 0.33		0.0 / 0.00	78 / 1.28		9.0 / 0.25			0.2			102[e]	19	[illegible]	6	2	Maximum 2 [illegible]	
2/6 0925	285	48	10.2	88	197	7.3[a]	1.66[c]		8.7 / 0.38		0.0 / 0.00	98 / 1.61		6.5 / 0.18			0.4			116[e]	[illegible]	83	[illegible]	[illegible]	Minimum [illegible]	
3/2 1300	683	54	9.9	92	190	7.1[a]	1.58[c]		6.8 / 0.30		0.0 / 0.00	95 / 1.56		5.5 / 0.16			0.3			112[e]	[illegible]	[illegible]	[illegible]	[illegible]		
4/2 1230	450	57	10.0	96	180	7.2[a]	1.66[c]		6.9 / 0.30		0.0 / 0.00	92 / 1.51		5.2 / 0.15			0.2			[illegible][e]	[illegible]	[illegible]	[illegible]			
5/13 0730	130	58	7.[illegible]	68	190	7.7[b]	20 / 1.00	7.7 / 0.63	7.7 / 0.33	1.4 / 0.04	0.0 / 0.00	100 / 1.64	8.6 / 0.18	4.5 / 0.13	1.2 / 0.02	0.1 / 0.01	0.3	12	Fe [illegible] Al [illegible][d] PO_4 [illegible]	113[f]	[illegible]	[illegible]	[illegible]	[illegible]		
6/1 1300	165	63	11.0	113	179	7.9[a]	1.68[c]		7.2 / 0.31		0.0 / 0.00	94 / 1.54		7.0 / 0.20			0.2			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
7/1 1330	217	64	[illegible]	134	168	7.3[a]	[illegible][c]		6.[illegible] / 0.28		0.0 / 0.00	92 / 1.51		4.0 / 0.11			0.3			[illegible][e]	[illegible]	74	[illegible]	[illegible]		
8/13 0740	210	63	7.6	79	172	7.3[a]	1.56[c]		7.0 / 0.30		0.[illegible] / 0.00	99 / 1.62		[illegible] / 0.11			0.3			102[e]	[illegible]	[illegible]	[illegible]	[illegible]		
9/3 1545	221	71	9.4	105	176	7.8[a]	18 / 0.90	7.9 / 0.65	7.[illegible] / 0.30	1.7 / 0.04	0.0 / 0.00	[illegible] / 1.57	5.4 / 0.11	5.[illegible] / 0.14	0.6 / 0.01	[illegible]	0.3	[illegible]	Al [illegible] Fe [illegible][d] PO_4 [illegible] Cu [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
10/1 1645	[illegible]	65	8.2	87	179	7.3[a]	1.62[c]		[illegible] / [illegible]		0.0 / 0.00	99 / 1.62		5.2 / [illegible]			0.2			[illegible][e]	[illegible]	81	[illegible]	[illegible]		
11/[illegible] 1530	[illegible]	64	8.4	88	183	7.3[a]	1.60[c]		7.0 / 0.30		0.[illegible] / 0.00	[illegible] / [illegible]		3.2 / 0.09			0.3			[illegible][e]	[illegible]	80	[illegible]	[illegible]		
12/3 1000	318	53	10.2	95	192	7.3[a]	1.76[c]		7.6 / 0.33		0.0 / 0.00	110 / 1.80		[illegible] / 0.11			0.5			[illegible][e]	16	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWDSC), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

RUSSIAN RIVER, EAST FORK AT POTTER VALLEY POWERHOUSE (STA. 10a)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																									Median 6 2	USGS
1/6 1120	312	42	11.3	89	148	7.5[b]	1.24[c]		5.6 / 0.24		0.0 / 0.00	72 / 1.18		5.0 / 0.14			0.3			89[e]	16	62	3	25	Maximum 620	
2/6 1100	307	44	11.1	91	138	7.4[a]	1.26[c]		5.0 / 0.22		0.0 / 0.00	67 / 1.10		3.0 / 0.08			0.3			83[e]	15	63	8	27	Minimum 0.045	
3/2 1115	163	47	11.1	94	114	7.3[a]	1.08[c]		3.3 / 0.14		0.0 / 0.00	56 / 0.92		3.0 / 0.08			0.1			68[e]	11	54	8	70		
4/2 1100	212	54	9.9	92	135	7.3[a]	1.16[c]		4.3 / 0.19		0.0 / 0.00	70 / 1.15		3.0 / 0.08			0.3			81[e]	14	58	1	40		
5/13 1245	75	62	8.6	88	155	7.8[b]	19 / 0.95	4.7 / 0.39	5.4 / 0.23	0.3 / 0.01	0.0 / 0.00	83 / 1.36	6.3 / 0.13	2.8 / 0.08	0.0 / 0.00	0.1 / 0.01	0.3	11	Fe 0.01 Al 0.04 [d] PO_4 0.05	91[f]	15	67	0	2		
6/11 1100	302	50	9.3	82	126	7.4[a]	1.24[c]		4.2 / 0.18		0.0 / 0.00	71 / 1.16		3.5 / 0.10			0.2			76[e]	13	62	4	20		
7/1 1220	307	59	8.9	88	137	7.4[a]	1.20[c]		4.4 / 0.19		0.0 / 0.00	76 / 1.25		2.5 / 0.07			0.2			82[e]	14	60	0	0 8		
8/13 0840	320	67	7.7	83	148	7.5[a]	1.32[c]		4.7 / 0.20		0.0 / 0.00	82 / 1.34		2.5 / 0.07			0.3			89[e]	13	66	0	3		
9/3 1325	260	70	8.0	89	160	7.7[a]	19 / 0.95	6.0 / 0.49	5.3 / 0.23	1.1 / 0.03	0.0 / 0.00	87 / 1.43	5.8 / 0.12	3.1 / 0.09	0.0 / 0.00	0.0 / 0.00	0.3	7.2	Al 0.01 Cu 0.02 [d] PO_4 0.00	91[f]	14	72	1	2		
10/4	Dry																									
11/4	Dry																									
12/3 1305	16	46	10.5	90	208	7.3[a]	1.88[c]		7.4 / 0.32		0.0 / 0.00	116 / 1.90		5.2 / 0.15			0.7			125[e]	15	94	0	3		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

SALMON RIVER AT SOMESBAR (STA. 2a)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																									Median 9.3	USGS
1/20 1020	1,540	39	12.9	90	89.6	7.3	12 / 0.60	2.9 / 0.24	1.9 / 0.08	0.1 / 0.00	0.0 / 0.00	45 / 0.74	3.8 / 0.08	2.5 / 0.07	0.1 / 0.00	0.0 / 0.00	0.0	13		58[f]	9	42	5		Maximum 2,400	
2/3 [illegible]	2,080	41	13.1	102	99.4	7.5	14 / 0.70	2.8 / 0.23	1.7 / 0.07	0.3 / 0.01	0.0 / 0.00	54 / 0.89	2.9 / 0.06	2.7 / 0.08	0.0 / 0.00	0.0 / 0.00	0.0	15		66[f]	7	47	3		Minimum 0.06	
3/5 1015	2,[illegible]	44	12.5	102	98.3	7.4	13 / 0.65	3.5 / 0.29	2.1 / 0.09	0.3 / 0.01	0.0 / 0.00	53 / 0.87	6.7 / 0.14	2.0 / 0.06	0.5 / 0.01	[illegible] / 0.00	0.0	15		69[f]	9	47	4	4		
4/[illegible] 11[illegible]	2,[illegible]	[illegible]	11.4	100	114	7.4	12 / 0.60	6.2 / 0.51	2.1 / 0.09	0.1 / 0.00	0.0 / 0.00	66 / 1.08	2.9 / 0.06	2.7 / 0.08	0.0 / 0.00	0.0 / 0.00	0.0	16		75[f]	8	55	1			
[illegible]	2,[illegible]	51	11.2	100	76.8	7.4	11 / 0.55	4.[illegible] / 0.33	1.6 / 0.07	0.1 / 0.00	0.0 / 0.00	40 / 0.66	9.6 / 0.20	1.8 / 0.05	0.4 / 0.01	[illegible] / 0.00	0.0	12	Fe [illegible] Al 0.12 d; PO_4 0.00	[illegible][f]	[illegible]	44	[illegible]	[illegible]		
6/[illegible] [illegible]	1,[illegible]	56	1[illegible].6	1[illegible]1	60.2	7.[illegible]	1[illegible] / 0.50	[illegible] / 0.05	1.7 / 0.07	0.3 / 0.01	0.0 / 0.00	33 / 0.54	1.[illegible] / 0.02	2.1 / 0.06	0.2 / 0.00	[illegible] / 0.00	0.0	9.5	Fe [illegible] Al [illegible] d; PO_4 [illegible]	41[f]	1[illegible]	28	[illegible]	[illegible]		
[illegible]	147	7[illegible]	8.[illegible]	97	1[illegible]	7.9	12 / 0.60	5.4 / 0.44	3.2 / 0.14	0.8 / 0.02	0.0 / 0.00	58 / 0.9[illegible]	7.0 / 0.15	3.2 / 0.09	1.6 / 0.03	[illegible]	[illegible]	15		77[f]	12	42	4			
8/[illegible] [illegible]	276	7[illegible]	8.4	[illegible]	176	[illegible].7	16 / 0.8[illegible]	6.8 / 0.56	10 / 0.44	1.8 / 0.05	[illegible]	90 / 1.[illegible]	4.0 / 0.08	6.5 / 0.15	[illegible]	[illegible]	0.1	18		109[f]	24	58	[illegible]			
[illegible]	1[illegible]	[illegible]	[illegible]	97	142	7.[illegible]	19 / 0.9[illegible]	4.[illegible] / 0.33	3.9 / 0.17	1.2 / 0.03	[illegible]	72 / 1.18	11 / 0.21	3.[illegible] / 0.[illegible]	0.4 / 0.01	0.1 / 0.01	0.1	16	Fe [illegible] PO_4 [illegible] d	94[f]	11	64	5	1[illegible]		
[illegible]	29[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	18 / 0.90	5.6 / 0.46	[illegible] / 0.23	[illegible].8 / 0.02	[illegible].0 / 0.00	74 / 1.21	13 / 0.2[illegible]	3.5 / 0.10	0.2 / 0.00	0.1 / 0.01	[illegible]	17		100[f]	14	68	7			
11/[illegible] [illegible]	174	[illegible]7	[illegible]	[illegible]	138	7.[illegible]	1.27[c]		3.5 / 0.15		[illegible].0 / 0.00	75 / 1.23		3.[illegible] / 0.[illegible]			[illegible]			[illegible][e]	11	63	1	8		
12/[illegible]	Not Sampled																									

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-1
ANALYSES OF SURFACE WATER
NORTH COASTAL REGION (NO. 1)

SCOTT RIVER NEAR FORT JONES (STA. 1b)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/	Not Sampled																								Median 6.2	
2/4 1430	645	44	12.2	99	163	7.3	15 / 0.75	10 / 0.85	2.4 / 0.10	0.1 / 0.00	0.0 / 0.00	95 / 1.56	2.9 / 0.06	3.9 / 0.11	1.0 / 0.02	0.0 / 0.00	0.0	18		100	6	80	2		Maximum 620.	
3/3 1350	790	48	10.8	99	179	7.5	17 / 0.85	11 / 0.89	2.9 / 0.13	0.5 / 0.01	0.0 / 0.00	106 / 1.74	4.8 / 0.10	2.0 / 0.06	1.1 / 0.02	0.1 / 0.01	0.0	20		111	7	87	0	18	Minimum 0.62	
4/7 1600	1,260	52	10.0	90	116	7.3	10 / 0.50	8.3 / 0.68	1.8 / 0.08	0.2 / 0.01	0.0 / 0.00	70 / 1.15	1.9 / 0.04	1.5 / 0.04	0.4 / 0.01	0.0 / 0.00	0.0	16		74	6	59	2			
5/6 1300	582	58	9.7	94	159	7.5	16 / 0.80	10 / 0.84	2.0 / 0.09	0.3 / 0.01	0.0 / 0.00	94 / 1.54	4.8 / 0.10	3.0 / 0.08	1.0 / 0.02	0.1 / 0.01	0.0	17	Fe 0.05 Al 0.06[d] PO_4 0.05	100	5	82	5	30		
6/4 1230	512	67	9.1	98	168	7.4	17 / 0.85	11 / 0.91	3.0 / 0.13	1.0 / 0.03	0.0 / 0.00	102 / 1.67	9.6 / 0.20	2.5 / 0.07	1.1 / 0.02	0.0 / 0.00	0.0	16		111	7	88	4			
7/15 0720	76	62	8.2	83	270	7.6	29 / 1.45	15 / 1.27	4.6 / 0.20	0.8 / 0.02	0.0 / 0.00	168 / 2.75	7.0 / 0.15	3.8 / 0.11	2.2 / 0.04	0.1 / 0.01	0.0	19		164	7	136	0			
8/11 1105	45	68	10.7	115	267	8.0	31 / 1.55	14 / 1.13	4.8 / 0.21	1.0 / 0.03	0.0 / 0.00	166 / 2.72	9.0 / 0.19	4.0 / 0.08	0.3 / 0.00	0.1 / 0.01	0.0	19		165	7	134	0			
9/8 1330	28	69	10.5	115	237	8.1	28 / 1.40	13 / 1.04	5.4 / 0.23	1.2 / 0.03	0.0 / 0.00	142 / 2.33	7.0 / 0.15	5.8 / 0.16	0.7 / 0.01	0.0 / 0.00	0.1	20	Fe 0.03 PO_4 0.0[d] Al 0.02	151[f]	9	122	6	10		
10/13 1230	53	61	9.6	97	273	8.0	31 / 1.55	17 / 1.39	5.4 / 0.23	0.7 / 0.02	0.0 / 0.00	170 / 2.79	10 / 0.21	6.0 / 0.17	1.0 / 0.02	0.1 / 0.01	0.1	17		172	7	147	8			
11/10 1230	58	46	12.3	103	273	7.9	30 / 1.50	17 / 1.36	5.2 / 0.23	0.6 / 0.02	0.0 / 0.00	170 / 2.79	5.0 / 0.10	3.5 / 0.10	1.2 / 0.02	0.1 / 0.01	0.0	20		167	7	143	4			
12/8 1150	58	37	12.5	101	272	7.5	30 / 1.50	16 / 1.34	5.9 / 0.26	2.2 / 0.06	0.0 / 0.00	171 / 2.80	6.0 / 0.12	9.0 / 0.25	1.6 / 0.03	0.0 / 0.00	0.0	21		176	8	142	2			

Mineral constituents in parts per million / equivalents per million

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

SHASTA RIVER NEAR YREKA (STA. 1a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/	Not Sampled																									
2/4 11[illegible]	[illegible]	44	[illegible]	[illegible]	[illegible]	[illegible]	28 / 1.40	[illegible] / 2.64	[illegible]	[illegible]	[illegible] / 0.27	[illegible] / 4.64	[illegible] / 0.17	24 / 0.68	[illegible] / 0.01	[illegible] / 0.01	[illegible]	[illegible]	Tot Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]		Median [illegible]	
3/3 0945	[illegible]	47	[illegible]	[illegible]	444	[illegible]	24 / 1.20	31 / 2.52	[illegible]	[illegible]	[illegible] / 0.00	266 / 4.36	4.8 / 0.10	18 / 0.51	[illegible] / 0.02	0.1 / 0.01	[illegible]	47		287	24	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
4/7 1145	124	[illegible]	[illegible]	102	[illegible]	[illegible]	[illegible] / 1.60	43 / 3.57	[illegible] / 1.74	[illegible]	11 / [illegible]	346 / 5.67	[illegible] / 0.11	20 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tot Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]		Minimum [illegible]	
5/6 1130	157	60	[illegible]	97	[illegible]	[illegible]	32 / [illegible]	[illegible]	[illegible] / 1.76	[illegible]	6 / [illegible]	330 / 5.41	[illegible] / 0.31	25 / 0.70	[illegible]	[illegible] / 0.01	[illegible]	[illegible]	Tot Alk [illegible]; Al [illegible] Fe [illegible]; PO_4 [illegible] [d]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible] noon	64	[illegible]	[illegible]	77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	29 / [illegible]	[illegible]	[illegible]	[illegible]	49	Tot Alk [illegible]	[illegible]	[illegible]	244	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	88	[illegible]	[illegible]	38 / [illegible]	41 / [illegible]	[illegible]	[illegible]	[illegible]	142 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tot Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21 / [illegible]	32 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible] PO_4 [illegible] [d]; Al [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.12	[illegible]	[illegible]	[illegible]	[illegible]	42		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	272 / [illegible]	6 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			

[illegible]

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

SMITH RIVER NEAR CRESCENT CITY (STA. 3a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/21 0810	3,080	44	12.5	103	87.3	7.3[a]	0.84[c]		2.0 / 0.09		0.0 / 0.00	48 / 0.79		3.2 / 0.09			0.0			55[e]	10	42	3	20	Median 2.3	
2/4 0730	4,000	46	12.2	102	80.3	7.2[a]	0.76[c]		2.4 / 0.10		0.0 / 0.00	45 / 0.74		3.5 / 0.10			0.0			50[e]	12	38	1	0	Maximum 230.	
3/4 0900	3,800	45	12.2	101	82.9	7.3[a]	0.78[c]		2.2 / 0.10		0.0 / 0.00	44 / 0.72		3.0 / 0.08			0.0			52[e]	11	39	3	15	Minimum 0.06	
4/7 1730	3,710	52	11.0	99	77.7	7.3[a]	0.84[c]		1.2 / 0.05		0.0 / 0.00	41 / 0.67		2.5 / 0.07			0.0			49[e]	6	42	8	15		
5/5 1400	1,460	52	9.1	82	91.8	7.8[b]	5.2 / 0.26	8.0 / 0.66	3.1 / 0.13	0.2 / 0.01	0.0 / 0.00	52 / 0.85	4.8 / 0.10	3.2 / 0.09	0.0 / 0.00	0.0 / 0.00	0.0	13	Fe 0.02 Al 0.05 PO_4 0.00 [d]	64[f]	12	46	3	10		
6/2 1315	795	59	10.1	100	103	7.3[a]	1.10[c]		2.2 / 0.10		0.0 / 0.00	61 / 1.00		2.5 / 0.07			0.1			64[e]	8	55	5	1		
7/15 1000	336	68	8.7	95	126	7.9[a]	1.28[c]		2.4 / 0.10		0.0 / 0.00	75 / 1.23		3.5 / 0.10			0.0			79[e]	7	64	2	1		
8/5 1130	268	70	8.5	95	133	7.3[a]	1.36[c]		2.7 / 0.12		0.0 / 0.00	78 / 1.28		3.0 / 0.08			0.1			83[e]	8	68	4	4		
9/2 0815	205	63	9.0	93	141	7.3[b]	9.6 / 0.48	13 / 1.04	3.2 / 0.14	0.5 / 0.01	0.0 / 0.00	89 / 1.46	5.0 / 0.10	3.5 / 0.10	0.5 / 0.01	0.1 / 0.01	0.1	14	Fe 0.01 PO_4 0.0 Al 0.02 [d]	94[f]	8	76	3	10		
10/7 1450	250	55	10.2	96	136	7.8[a]	1.33[c]		2.7 / 0.12		0.0 / 0.00	78 / 1.28		3.4 / 0.10			0.0			85[e]	8	66	2	2		
11/5 1000	385	49	11.3	99	137	7.2[a]	1.32[c]		2.6 / 0.11		0.0 / 0.00	71 / 1.16		3.6 / 0.10			0.0			86[e]	8	66	8	2		
12/10 0800	346	41	11.8	92	133	7.3[a]	1.46[c]		3.5 / 0.15		0.0 / 0.00	76 / 1.25		4.8 / 0.14			0.0			83[e]	9	73	11	10		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

TRINITY RIVER NEAR BURNT RANCH (STA. 4b)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/19 1610	3,660	43	12.5	100	121	7.3	11 / 0.55	6.1 / 0.50	6.1 / 0.27	0.3 / 0.01	0.0 / 0.00	65 / 1.07	3.8 / 0.08	4.5 / 0.13	0.2 / 0.00	0.0 / 0.00	0.0	14		78[f]	20	[illegible]	[illegible]			
2/2 1520	3,140	42	12.1	[illegible]	130	7.5	14 / 0.70	7.1 / 0.58	3.1 / 0.13	0.3 / 0.01	0.0 / 0.00	74 / 1.21	4.8 / 0.10	4.0 / 0.11	0.2 / 0.00	0.00 / 0.00	0.0	16		86[f]	[illegible]	64	[illegible]			
3/5 1300	3,630	45	11.8	98	115	7.4	11 / 0.55	6.4 / 0.53	3.1 / 0.13	0.8 / 0.02	[illegible]	66 / 1.08	4.8 / 0.10	2.5 / 0.07	0.3 / 0.00	[illegible]	[illegible]	18		80[f]	[illegible]	54	[illegible]			
4/8 1600	2,860	50	11.4	100	100	7.3	8.0 / 0.40	6.1 / 0.50	1.8 / 0.08	0.1 / 0.00	0.0 / 0.00	50 / 0.82	5.8 / 0.12	1.5 / 0.04	0.0 / 0.00	0.0 / 0.00	0.1	14		[illegible][f]	[illegible]	45	4			
5/6 1400	2,040	56	10.5	100	105	7.4	11 / 0.55	4.5 / 0.37	2.4 / 0.10	0.2 / 0.01	0.0 / 0.00	56 / 0.92	2.3 / 0.05	2.5 / 0.07	0.2 / 0.00	0.0 / 0.00	[illegible]	15	Fe [illegible] Al [illegible][d] PO_4 [illegible]	65[f]	[illegible]	[illegible]	[illegible]	[illegible]		
6/3 1200	1,700	61	[illegible]	[illegible]	86.9	7.4	6.4 / 0.32	4.9 / 0.40	2.2 / 0.10	0.1 / 0.00	[illegible]	48 / 0.79	[illegible] / 0.02	1.5 / 0.04	[illegible]	[illegible]	0.08	25	Fe [illegible] Al 0.04[d] [illegible] Zn [illegible]	[illegible][f]	12	[illegible]	[illegible]			
7/16 0730	615	72	7.7	88	138	7.9	14 / 0.70	8.0 / 0.66	4.3 / 0.19	1.0 / 0.03	[illegible]	74 / 1.21	10 / 0.21	[illegible] / 0.16	[illegible]	0.1 / [illegible]	0.1	[illegible]		[illegible][f]	12	[illegible]	[illegible]			
8/6 1200	489	74	7.5	87	178	7.8	18 / 0.90	8.8 / 0.72	6.2 / [illegible]	1.4 / 0.04	[illegible] / 0.00	94 / [illegible]	[illegible] / 0.10	7.2 / 0.20	0.4 / 0.01	0.1 / 0.01	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	4			
9/10 1215	486	75	8.3	97	210	7.4	20 / 1.00	11 / 0.92	9.5 / 0.41	2.0 / 0.05	[illegible] / 0.00	110 / 1.80	13 / 0.27	11 / 0.31	[illegible] / 0.00	0.1 / 0.01	[illegible]	13	PO_4 [illegible] As [illegible][d]	130[f]	17	[illegible]	[illegible]			
10/8 1910	303	55	10.[illegible]	94	205	7.7	20 / 1.00	12 / 1.00	12 / 0.52	1.3 / 0.03	[illegible]	[illegible] / [illegible]	23 / [illegible]	12 / 0.34	[illegible]	0.1 / [illegible]	[illegible]	[illegible]		[illegible][f]	20	[illegible]	[illegible]			
11/6 1315	300	[illegible]	11.3	97	210	7.7	[illegible] / 1.84[c]		8.4 / 0.37		[illegible] / 0.00	108 / 1.77		10 / 0.28			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
12/10 1430	[illegible]	43	11.9	98	214	7.7	[illegible] / [illegible][c]		8.7 / [illegible]		[illegible]	108 / [illegible]		11 / 0.31			[illegible]			136[e]	16	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}) reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

TRINITY RIVER NEAR HOOPA (STA. 4)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																									Median 1.3	USGS
1/20 0750	6,760	43	12.1	97	139	7.4	/1.32[c]		2.9/0.13		0.0/0.00	75/1.23		3.2/0.09			0.1			85[e]	9	66	4	25	Maximum 7,000.	
2/3 0815	7,300	44	12.6	103	137	7.6	/1.36[c]		2.6/0.11		0.0/0.00	77/1.26		3.0/0.08			0.0			84[e]	7	68	5	4	Minimum 0.06	
3/5 0800	13,600	47	11.5	97	125	7.4	/1.30[c]		2.3/0.10		0.0/0.00	74/1.21		2.5/0.07			0.0			76[e]	7	65	4	35		
4/8 1000	10,700	50	10.8	96	108	7.5	/1.20[c]		2.0/0.09		0.0/0.00	58/0.95		2.0/0.06			0.0			66[e]	7	60	12	70		
5/6 1200	4,790	54	10.6	98	117	7.5	12/0.60	7.3/0.60	2.1/0.09	0.1/0.00	0.0/0.00	66/1.08	4.8/0.10	3.2/0.09	0.5/0.01	0.0/0.00	0.0	15	Fe 0.03 Al 0.03[d] PO_4 0.0	78[f]	7	60	6	15		
6/3 0545	4,030	62	9.3	95	105	7.4	/1.00[c]		2.7/0.12		0.0/0.00	60/0.98		2.0/0.06			0.0			64[e]	11	50	1	13		
7/15 1400	994	76	8.9	105	165	8.1	/1.60[c]		4.2/0.18		2/0.07	89/1.46		4.8/0.14			0.0		Tot. Alk. 93	101[e]	10	80	4	1		
8/6 0830	528	73	8.6	99	202	7.8	/1.92[c]		4.8/0.21		0.0/0.00	110/1.80		4.8/0.14			0.2			123[e]	10	96	6	15		
9/10 0710	424	74	7.6	88	222	7.6	18/0.90	15/1.22	6.1/0.27	1.1/0.03	0.0/0.00	120/1.97	11/0.23	7.8/0.22	0.2/0.00	0.1/0.01	0.1	14	Fe 0.02 Al 0.02[d] PO_4 0.0	132[f]	11	106	8	10		
10/8 1030	562	59	9.5	93	222	7.9	/2.03[c]		6.8/0.30		0.0/0.00	117/1.92		8.8/0.25			0.1			135[e]	13	102	6	2		
11/5 1520	545	54	11.2	104	229	7.9	/2.07[c]		7.1/0.31		0.0/0.00	115/1.88		8.8/0.25			0.0			139[e]	13	103	9	5		
12/10 1300	517	46	11.8	99	243	7.9	/2.40[c]		8.4/0.37		0.0/0.00	126/2.07		12/0.34			0.1			148[e]	13	120	17	15		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

TRINITY RIVER AT LEWISTON (STA. 4a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)
1959													
1/19 1400	2,100	42	12.0	95	[illegible].6	7.3	0.92[c]		3.1 / 0.13		0.0 / 0.00	53 / 0.87	
2/2 1315	1,500	41	12.3	[illegible]	109	7.8	0.92[c]		3.6 / 0.16		0.0 / 0.00	58 / 0.95	
3/2 1245	3,190	44	11.6	94	99.1	7.5	0.89[c]		3.0 / 0.13		0.0 / 0.00	54 / 0.89	
4/[illegible] 1230	5,62[illegible]	49	[illegible]1.4	99	76.3	7.3	0.80[c]		1.6 / 0.07		0.0 / 0.00	44 / 0.72	
5/4 1[illegible]	2,290	[illegible]	1[illegible].8	95	85.6	7.3	5.2 / 0.26	7.5 / 0.62	2.2 / 0.10	0.4 / 0.01	[illegible].0 / 0.00	46 / 0.75	5.8 / 0.12
6/[illegible] 1[illegible]	2,180	58	1[illegible].2	100	71.2	7.4	0.66[c]		2.3 / 0.10		[illegible]0 / 0.00	40 / 0.66	
7/16 1400	319	71	8.3	93	121	7.6	1.14[c]		5.[illegible] / 0.22		[illegible].0 / 0.00	70 / 1.15	
8/6 1330	173	76	7.9	93	160	7.[illegible]	1.36[c]		[illegible].9 / 0.30		4 / 0.13	74 / 1.21	
9/10 1400	124	72	8.2	93	16[illegible]	7.7	20 / 1.00	6.[illegible] / 0.52	7.9 / 0.34	1.1 / 0.03	[illegible] / 0.00	88 / 1.44	11 / 0.23
10/9 0900	14[illegible]	58	9.3	91	[illegible]72	7.7	1.52[c]		9.3 / 0.4[illegible]		[illegible].0 / 0.00	88 / 1.44	
11/6 1510	167	52	11.2	102	18[illegible]	7.5	1.49[c]		9.1 / 0.4[illegible]		0.0 / 0.00	85 / 1.39	
12/1[illegible] 1600	156	39	12.1	[illegible]	1[illegible]	7.[illegible]	1.68[c]		1[illegible] / 0.44		[illegible] / 0.00	[illegible] / 1.[illegible]	

Mineral constituents in parts per million / equivalents per million (continued)

Date and time sampled P.S.T.	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959												Median [illegible]	[illegible]
1/19 1400	3.0 / 0.08			0.0			[illegible][e]	[illegible]	[illegible]	[illegible]	20	Maximum [illegible]	
2/2 1315	4.0 / 0.11			0.1			[illegible]9[e]	[illegible]	[illegible]	[illegible]	[illegible]	Minimum [illegible]	
3/2 1245	2.2 / 0.06			0.0			[illegible]2[e]	[illegible]	44	[illegible]	[illegible]		
4/[illegible] 1230	1.2 / 0.03			0.0			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
5/4 1[illegible]	2.8 / 0.08	0.6 / 0.01	0.0 / 0.00	[illegible]	14	Fe [illegible] Al [illegible][d] PO_4 0.00	[illegible]2[f]	[illegible]	44	[illegible]	[illegible]		
6/[illegible] 1[illegible]	1.5 / 0.04			0.[illegible]			4[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
7/16 1400	3.5 / 0.10			[illegible].1			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
8/6 1330	8.2 / 0.23			[illegible]		Tot Alk 82	[illegible][e]	[illegible]	[illegible]	[illegible]			
9/10 1400	6.[illegible] / 0.18	[illegible] / 0.0[illegible]	[illegible].2 / 0.01	[illegible].2	14	Fe [illegible] Al [illegible][d] PO_4 [illegible]	[illegible]1[f]	1[illegible]	[illegible]	[illegible]	[illegible]		
10/9 0900	9.[illegible] / 0.2[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
11/6 1510	[illegible].6 / 0.24			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
12/1[illegible] 1600	14 / 0.39			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-1

ANALYSES OF SURFACE WATER

NORTH COASTAL REGION (NO. 1)

VAN DUZEN NEAR BRIDGEVILLE (STA. 5a)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																									Median 0.23	USGS
1/7 0945	3,930	62	10.6	108	104	7.6[b]	12 0.60	5.1 0.42	3.5 0.15	0.3 0.01	0.0 0.00	51 0.84	9.6 0.20	3.5 0.10	1.8 0.03	0.1 0.01	0.1	10		71[f]	13	51	9		Maximum 62.	
2/18 0945	9,700	43			71.5	7.4[a]	8.8 0.44	1.5 0.12	3.5 0.15	0.7 0.02	0.0 0.00	37 0.61	1.9 0.04	2.5 0.07	0.0 0.00	0.1 0.01	0.2	10		47[f]	21	28	0		Minimum <0.045	
3/6 0930	876	48			95.0	7.8[b]	13 0.65	3.3 0.27	2.8 0.12	0.5 0.01	0.0 0.00	54 0.89	5.8 0.12	1.8 0.05	0.0 0.00	0.0 0.00	0.0	10		64[f]	11	46	2			
4/10 0830	512	53			125	7.9[b]	17 0.85	3.8 0.31	3.3 0.14	0.4 0.01	0.0 0.00	66 1.08	5.8 0.12	2.5 0.07	1.5 0.02	0.0 0.00	0.0	9.8		77[f]	11	58	4			
5/7 1015	224	60	9.2	92	150	7.8[b]	19 0.95	5.5 0.45	2.9 0.13	0.6 0.02	0.0 0.00	81 1.33	5.8 0.12	3.0 0.08	0.0 0.00	0.0 0.00	0.1	12	Al 0.03 PO_4 0.00 [d]	89[f]	8	70	4	15		
6/9 1210	82	74	9.7	112	181	8.4[b]	24 1.20	6.1 0.50	4.7 0.20	1.1 0.03	2 0.07	94 1.54	11 0.23	3.5 0.10	0.7 0.01	0.0 0.00	0.0	7.6	Tot. Alk. 98	107[f]	10	85	5			
7/15 0830	19	65	8.9	94	223	8.1[b]	2.08[c]		7.0 0.30		0.0 0.00	122 2.00		4.2 0.12			0.0			138[e]	13	104	4	1		
8/4 1530	3.0	70	8.3	92	296	7.4[a]	39 1.95	10 0.85	10 0.44	1.8 0.05	6 0.20	150 2.46	17 0.35	7.0 0.20	0.1 0.00	0.1 0.01	0.1	7.2	Tot. Alk. 162	172[f]	13	140	7			
9/8 1300	7	68	8.4	92	257	7.9[a]	35 1.75	7.4 0.61	9.0 0.39	1.9 0.05	0.0 0.00	135 2.21	23 0.48	5.8 0.16	0.7 0.01	0.1 0.01	0.2	8.4	Fe 0.01 Al 0.06 [d] PO_4 0.0	159[f]	14	118	7	10		
10/7 0855	14	59	10.2	100	242	7.9[a]	34 1.70	10 0.86	7.7 0.33	1.5 0.04	0.0 0.00	126 2.07	35 0.73	4.0 0.11	0.0 0.00	0.1 0.01	0.1	10		164[f]	11	128	25			
11/4 1000	20	53	10.9	100	239	7.9[a]	2.01[c]		9.7 0.42		0.0 0.00	126 2.07		4.4 0.12			0.0			148[a]	17	101	0	3		
12/9 1415	6.5	46	11.2	94	319	7.9[a]	3.04[c]		11 0.48		0.0 0.00	166 2.72		8.0 0.23			0.0			198[e]	14	152	16	10		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-2

ANALYSES OF SURFACE WATER

SAN FRANCISCO BAY REGION (NO. 2)

ALAMEDA CREEK NEAR NILES (STA. [illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
1959																										[illegible]
1/8 [illegible]	[illegible]	[illegible]	[illegible]	98	[illegible]	7.[illegible]	[illegible]		[illegible] / 2.71		[illegible] / 0.00	345 / 5.65		40 / 1.13			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Median [illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		71 / [illegible]		[illegible] / 0.00	327 / [illegible]		61 / 1.72			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		36 / [illegible]		[illegible] / 0.00	241 / [illegible]		42 / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14 / [illegible]	71 / [illegible]	[illegible]	0.2 / [illegible]	[illegible]	[illegible]	Fe [illegible] Al [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]																									
[illegible]	[illegible]																									
[illegible]	[illegible]																									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

TABLE B-2
ANALYSES OF SURFACE WATER

SAN FRANCISCO BAY REGION (NO. 2)

ARROYO DEL VALLE AT VETERANS ADMINISTRATION HOSPITAL (STA. 71)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/8	Not Sampled																									
2/10 1200	5.5	52	10.9	98	721	8.1	20 / 1.00	64 / 5.24	42 / 1.83	1.7 / 0.04	0.0 / 0.00	298 / 4.88	108 / 2.25	36 / 1.02	0.0 / 0.00	0.2 / 0.01	0.5	13		432	23	312	68			
3/4 0900	21	52	10.2	92	476	7.9	48 / 2.40	22 / 1.80	20 / 0.87	1.9 / 0.05	0.0 / 0.00	221 / 3.62	55 / 1.15	15 / 0.42	2.5 / 0.04	0.1 / 0.01	0.3	14		288	17	210	29			
4/2 0930	7.5	66	9.6	102	569	7.9	51 / 2.54	29 / 2.41	28 / 1.22	1.8 / 0.05	1 / 0.03	251 / 4.11	69 / 1.44	24 / 0.68	0.0 / 0.00	0.0 / 0.00	0.3	14	Tot. Alk. 253	342	20	247	40			
5/13 1130	0.6	66	8.3	88	761	7.9	65 / 3.24	24 / 1.96	78 / 3.39	2.4 / 0.06	0.0 / 0.00	313 / 5.13	105 / 2.19	46 / 1.30	0.1 / 0.00	0.1 / 0.01	0.7	17	Zn 0.01 Al 0.11 [d] PO_4 0.00	492	39	260	3	0.5		
6/9 1400	0	68	8.9	97	918	7.9	70 / 3.49	37 / 3.01	76 / 3.31	3.2 / 0.08	8 / 0.27	335 / 5.49	113 / 2.35	66 / 1.86	0.2 / 0.00	0.2 / 0.01	0.36	27	Al 0.16 Zn 0.01 [d] Cu 0.01 Tot. Alk. 351	546	33	325	37			
7/3 0630	0.8	63	6.5	67	1,030	7.6	82 / 4.09	35 / 2.91	90 / 3.92	4.2 / 0.11	6 / 0.20	368 / 6.03	113 / 2.35	87 / 2.45	0.2 / 0.00	0.1 / 0.01	1.4	28	Tot. Alk. 380	628	36	350	38			
8/3 0800	0	66	4.5	48	1,320	7.4	83 / 4.14	46 / 3.78	142 / 6.18	8.6 / 0.22	0.0 / 0.00	429 / 7.03	130 / 2.70	159 / 4.48	3.5 / 0.06	0.4 / 0.02	2.7	34		820	43	396	44			
9/8	Dry																									
10/16	Dry																									
11/5	Dry																									
12/9	Dry																									

Mineral constituents in parts per million / equivalents per million (each mineral cell: ppm / epm).

a Field pH.
b Laboratory pH.
c Sum of calcium and magnesium in epm.
d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.
e Derived from conductivity vs TDS curves.
f Determined by addition of analyzed constituents.
g Gravimetric determination.
h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.
i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-2

ANALYSES OF SURFACE WATER

SAN FRANCISCO BAY REGION (NO. 2)

CARQUINEZ STRAITS AT MARTINEZ (STA. 2Ha)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[g]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USBR
1/14 1130		54			[illegible],698															[illegible]						
2/11 [illegible]		[illegible]			4,111															[illegible]						
[illegible]		[illegible]			14,076															[illegible]						
4/14 [illegible]		[illegible]			[illegible]															[illegible]						
[illegible]		[illegible]			[illegible]															[illegible]						
[illegible]		[illegible]			[illegible]															[illegible]						
[illegible] 14		71			[illegible]															[illegible]						
[illegible]		[illegible]			[illegible],294															[illegible]						
[illegible]		[illegible]			[illegible]															[illegible]						
[illegible]		[illegible]			[illegible]																					
[illegible]		[illegible]			[illegible]															[illegible]						

[illegible]

TABLE B-2

ANALYSES OF SURFACE WATER

SAN FRANCISCO BAY REGION (NO. 2)

COYOTE CREEK NEAR MADRONE (STA. 82)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/8 1350	22	54	11.4	105	325	7.9	2.78[c]		14 / 0.61		0.0 / 0.00	154 / 2.52		11 / 0.31			0.0			190[e]	18	139	13	1	Median 23.	
2/10 0930	14	51	9.9	88	323	7.7	2.76[c]		12 / 0.52		0.0 / 0.00	154 / 2.52		10 / 0.28			0.2			189[e]	16	138	12	10	Maximum 620.	
3/5 1705	9.1	56	10.8	102	347	7.9	3.02[c]		13 / 0.57		0.0 / 0.00	147 / 2.41		11 / 0.31			0.1			203[e]	16	151	30	35	Minimum 0.23	
4/1 1620	36	58	10.9	106	321	7.7	2.76[c]		13 / 0.57		0.0 / 0.00	146 / 2.39		9.0 / 0.25			0.1			187[e]	17	138	18	15		
5/12 0755	80	53	10.6	97	322	7.7	32 / 1.60	15 / 1.20	14 / 0.61	1.2 / 0.03	0.0 / 0.00	153 / 2.51	32 / 0.67	10 / 0.28	0.8 / 0.01	0.0 / 0.00	0.0	5.8	Al 0.08 Zn 0.01[d] Cu 0.01 PO_4 0.00	186[f]	18	140	15	3		
6/9 1045	107	56	10.6	100	324	7.7	2.80[c]		14 / 0.61		0.0 / 0.00	155 / 2.54		11 / 0.31			0.1			189[e]	18	140	13	20		
7/2 1545	121	56	10.5	100	323	7.7	2.74[c]		15 / 0.65		0.0 / 0.00	155 / 2.54		9.2 / 0.26			0.1			189[e]	19	137	10	5		
8/4 0725	93	53	9.8	90	327	7.5	2.82[c]		16 / 0.70		0.0 / 0.00	159 / 2.61		8.2 / 0.23			0.1			191[e]	20	141	11	2		
9/9 1430	93	58	9.7	94	325	7.6	34 / 1.70	14 / 1.16	15 / 0.65	2.6 / 0.07	0.0 / 0.00	162 / 2.66	27 / 0.56	9.8 / 0.28	1.0 / 0.02	0.1 / 0.01	0.1	11	PO_4 0.00 Al 0.07[d] Zn 0.04	195[f]	18	143	10	1		
10/15 1500	79	56	10.0	96	338	7.7	3.12[c]		15 / 0.65		0.0 / 0.00	166 / 2.72		15 / 0.42			0.2			197[e]	17	156	20	5		
11/5 1200	112	58	9.9	96	347	7.7	3.04[c]		15 / 0.65		0.0 / 0.00	172 / 2.82		12 / 0.34			0.1			203[e]	18	152	11	10		
12/9 1400	104	57	10.3	99	361	8.1	3.22[c]		17 / 0.74		0.0 / 0.00	184 / 3.02		25 / 0.70			0.1			211[e]	19	161	10	20		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-2

ANALYSES OF SURFACE WATER

SAN FRANCISCO BAY REGION (NO. 2)

LOS GATOS CREEK AT LOS GATOS (STA. 74)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[a] MPN/ml	Analyzed by[i]
[illegible]																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	90	[illegible]	7	[illegible]		[illegible]		[illegible]	224/3.67		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	10.4	[illegible]	[illegible]	7.4	[illegible]		[illegible]		[illegible]/0.00	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]																								[illegible]	
[illegible]	13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]/1.66		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]/2.11		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	12.0	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible]

TABLE B-2

ANALYSES OF SURFACE WATER

SAN FRANCISCO BAY REGION (NO. 2)

NAPA RIVER NEAR ST. HELENA (STA. 72)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/7 1115	31	50	10.0	88	264	7.2	1.72[c]		24 / 1.04		0.0 / 0.00	80 / 1.31		25 / 0.70			0.6			176[e]	38	86	20	60	Median 230	
2/6 1640	21	56	11.9	113	218	7.8	1.44[c]		20 / 0.87		0.0 / 0.00	90 / 1.48		18 / 0.51			0.4			145[e]	38	72	0	0	Maximum 7,000	
3/9 1620	44	64	9.3	97	218	7.3	1.40[c]		16 / 0.70		0.0 / 0.00	87 / 1.43		12 / 0.34			0.4			145[e]	33	70	0	2	Minimum 0.62	
4/1 1130	24	68	8.8	96	256	7.3	1.72[c]		23 / 1.00		2 / 0.07	102 / 1.67		17 / 0.48			0.5			171[e]	37	86	0	10		
5/11 1440	5.7	75	8.1	95	319	7.3	26 / 1.30	11 / 0.90	23 / 1.00	3.4 / 0.09	0.0 / 0.00	142 / 2.33	17 / 0.35	20 / 0.56	2.1 / 0.03	0.5 / 0.03	0.6	38	Fe 0.09 / Zn 0.01, Al 0.24 / PO_4 0.55 [d]	212[f]	30	110	0	50		
6/11 1000	1.1	72	7.8	88	352	7.1	2.76[c]		20 / 0.87		0.0 / 0.00	170 / 2.79		16 / 0.45			0.5			234[e]	24	138	0	15		
7/1 1600	0.4	80	13.2	162	346	7.9	2.86[c]		18 / 0.78		0.0 / 0.00	181 / 2.97		13 / 0.37			0.4			230[e]	21	143	0	20		
8/12 0930	0.3 (est.)	70	6.2	69	331	7.4	2.32[c]		26 / 1.13		0.0 / 0.00	183 / 3.00		11 / 0.31			0.4			220[e]	33	116	0	5		
9/4	Dry																									
10/15 1035	0.8	64	9.6	100	379	7.5	3.06[c]		21 / 0.91		0.0 / 0.00	187 / 3.06		28 / 0.79			0.5			252[e]	23	153	0	2		
11/4 1700	0.46	60	9.9	99	381	7.4	3.06[c]		21 / 0.91		0.0 / 0.00	196 / 3.21		16 / 0.45			0.4			254[e]	23	153	0	2		
12/3 1645	1.0	51	10.8	96	395	7.3	3.16[c]		22 / 0.96		0.0 / 0.00	177 / 2.90		34 / 0.96			0.6			263[e]	23	158	13	4		

a Field pH.

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);, San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-3

ANALYSES OF SURFACE WATER

CENTRAL COASTAL REGION (NO. [illegible])

CARMEL RIVER AT ROBLES DEL RIO [illegible]

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[a] MPN/ml	Analyzed by[1]
[illegible]																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.97		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]																									
[illegible]	[illegible]																									
[illegible]	[illegible]																									
[illegible]	[illegible]																									
[illegible]	[illegible]																									

[illegible]

TABLE B-3
ANALYSES OF SURFACE WATER

CENTRAL COASTAL REGION (NO. 3)

PAJARO RIVER NEAR CHITTENDEN (STA. 77)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25° C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/8 1030	32	50	9.9	87	1,360	7.7	12.50[c]		75 / 3.26		0.0 / 0.00	348 / 5.70		79 / 2.23			0.4			858[e]	21	625	340	3	Median 36.5	
2/10 0740	21	50	9.5	84	1,380	7.7	11.80[c]		100 / 4.35		0.0 / 0.00	334 / 5.47		93 / 2.62			0.5			871[e]	27	590	316	1	Maximum 2,400	
3/5 1100	200	60	8.4	84	634	7.5	5.02[c]		36 / 1.57		0.0 / 0.00	207 / 3.39		37 / 1.04			0.3			400[e]	24	251	81	25	Minimum 0.62	
4/1 1505	37	69	8.1	89	1,160	7.7	7.94[c]		77 / 3.35		0.0 / 0.00	333 / 5.46		69 / 1.95			0.4			733[e]	30	397	124	35		
5/12 1045	21	64	7.7	80	1,390	8.1	95 / 4.74	73 / 5.98	119 / 5.18	3.0 / 0.08	0.0 / 0.00	420 / 6.88	288 / 6.00	99 / 2.79	15 / 0.24	0.2 / 0.01	0.7	21	Fe 0.01 Al 0.22[d] Zn 0.01 PO_4 0.20	921[f]	32	536	192	1		
6/9 0745	18	76	8.7	102	1,420	7.9	10.72[c]		131 / 5.70		4 / 0.13	456 / 7.47		118 / 3.33			0.6		Tot. Alk. 464	897[e]	35	536	156	20		
7/2 1420	5.9	72	6.8	77	1,480	7.9	10.60[c]		151 / 6.57		13 / 0.43	469 / 7.69		125 / 3.52			0.7		Tot. Alk. 495	935[e]	38	530	124	20		
8/4 0815	5.2	62	8.4	85	1,320	8.1	9.08[c]		139 / 6.05		10 / 0.33	504 / 8.26		112 / 3.16			0.7		Tot. Alk. 524	834[e]	40	454	24	10		
9/9 1145	6.2	69	8.0	88	1,430	8.1	65 / 3.24	58 / 4.76	177 / 7.70	12 / 0.31	0.0 / 0.00	620 / 10.16	67 / 1.39	152 / 4.29	0.8 / 0.01	0.1 / 0.01	0.7	32	Fe 0.19 Al 0.40[d] Mn 6.5 Zn 0.05 Cu 0.01 PO_4 1.9	870[f]	48	400	0	15		
10/7 1500	1.8	67	8.1	88	1,250	8.0	10.14[c]		94 / 4.09		0.0 / 0.00	442 / 7.24		99 / 2.79			0.5			789[e]	29	507	145	35		
11/4 1240	12	58	8.3	81	1,350	7.7	9.60[c]		126 / 5.48		0.0 / 0.00	418 / 6.85		125 / 3.52			0.7			853[e]	36	480	137	3		
12/9 1630	13	50	9.7	86	1,270	7.8	100 / 4.99	75 / 6.17	85 / 3.70	5.5 / 0.14	0.0 / 0.00	371 / 6.08	298 / 6.20	80 / 2.26	3.9 / 0.06	0.3 / 0.02	0.5	29	Fe 0.02 Al 0.27[d] Zn 0.02	860[f]	25	558	254			

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-[illegible]

ANALYSES OF SURFACE WATER

CENTRAL [illegible] REGION (N[illegible])

[illegible] RIVER NEAR [illegible] (STA [illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
[illegible]																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		26 / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible] Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]																									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible]

TABLE B-3

ANALYSES OF SURFACE WATER

CENTRAL COASTAL REGION (NO. 3)

SAN BENITO RIVER NEAR BEAR VALLEY FIRE STATION (STA. 77a)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/8 1140	40 (est.)	52	10.4	94	1,330	8.3	49 / 2.45	99 / 8.15	122 / 5.31	3.3 / 0.08	0.0 / 0.00	526 / 8.62	257 / 5.35	68 / 1.92	0.9 / 0.01	0.3 / 0.02	1.0	13		872[f]	33	530	99		Median 4.2	
2/9 1645	15 (est.)	50	11.0	97	1,610	8.1	43 / 2.15	101 / 8.33	196 / 8.53	2.8 / 0.07	19 / 0.63	479 / 7.85	334 / 6.95	108 / 3.05	0.0 / 0.00	0.3 / 0.02	1.5	11	Tot. Alk 517	1,050[f]	45	524	99		Maximum 230.	
3/5 1245	30 (est.)	67	9.0	97	1,220	8.1	2.4 / 0.12	114 / 9.40	114 / 4.96	2.7 / 0.07	0.0 / 0.00	503 / 8.24	192 / 4.00	64 / 1.80	1.9 / 0.03	0.5 / 0.03	1.0	15		756[f]	34	476	64		Minimum 0.23	
4/1 1410	12 (est.)	79	8.3	101	1,370	8.1	30 / 1.50	98 / 8.02	149 / 6.48	3.2 / 0.08	27 / 0.90	417 / 6.83	282 / 5.87	81 / 2.28	0.0 / 0.00	0.2 / 0.01	1.3	4.0	Tot. Alk 471	882[f]	40	476	89			
5/12	Dry																									
6/8 1630	2.5 (est.)	81	8.0	99	1,730	8.1	38 / 1.90	103 / 8.46	216 / 9.40	7.2 / 0.18	19 / 0.63	454 / 7.44	379 / 7.89	139 / 3.92	0.0 / 0.00	0.2 / 0.01	1.6	13	Fe 0.01 PO4 0.00[d] Al 0.21 Zn 0.01 Tot. Alk. 492	1,140[f]	47	518	114	9		
7/2	Dry																									
8/3 1510	1.5 (est.)	85	9.7	126	2,130	8.1	52 / 2.59	108 / 8.85	292 / 12.70	6.0 / 0.15	29 / 0.97	463 / 7.59	464 / 9.66	195 / 5.50	0.7 / 0.01	0.4 / 0.02	2.3	16	Tot. Alk. 521	1,390[f]	52	572	145			
9/9	Dry																									
10/7	Dry																									
11/4 1350	2.5 (est.)	63	9.8	101	1,880	8.1	11.80[c]		216 / 9.40		15 / 0.50	512 / 8.39		148 / 4.17			1.9		Tot. Alk. 542	1,218[e]	47	590	146	1		
12/9 1200	1.3 (est.)	56	11.2	106	1,790	8.1	11.92[c]		209 / 9.09		21 / 0.70	504 / 8.26		142 / 4.00			1.6		Tot. Alk. 546	1,159[e]	43	596	147	6		

a Field pH.

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-3

ANALYSES OF SURFACE WATER

CENTRAL COASTAL REGION [illegible]

[illegible] BIG [illegible]

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.4	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		17 / .74		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	53	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]			

[illegible]

TABLE B-3

ANALYSES OF SURFACE WATER

CENTRAL COASTAL REGION (NO. 3)

SOQUEL CREEK AT SOQUEL (STA. 76)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/7 1640	25	52	10.4	94	703	7.5	5.36[c]		41 / 1.78		0.0 / 0.00	183 / 3.00		52 / 1.47			0.0			444[e]	25	268	118	1	Median 23	
2/9 1230	9.9	48	11.5	99	690	8.1	5.40[c]		48 / 2.09		0.0 / 0.00	222 / 3.64		46 / 1.30			0.0			435[e]	28	270	88	1	Maximum 2,400	
3/4 1630	56	53	9.5	87	554	7.7	4.50[c]		27 / 1.17		0.0 / 0.00	180 / 2.95		25 / 0.70			0.1			350[e]	21	225	77	4	Minimum 1.3	
4/1 1100	19	60	10.0	100	638	7.9	4.30[c]		36 / 1.57		6 / 0.20	203 / 3.33		36 / 1.02			0.1		Tot. Alk. 215	403[e]	27	215	39	2		
5/13 0855	7.7	59	9.6	94	708	7.9	74 / 3.69	22 / 1.78	42 / 1.83	3.9 / 0.10	0.0 / 0.00	241 / 3.95	104 / 2.17	51 / 1.44	0.4 / 0.01	0.2 / 0.01	0.1	27	Fe 0.02 Al 0.11[d] Zn 0.01 PO_4 0.30	444[f]	25	274	76	0 7		
6/8 1145	4.3	64	9.3	97	713	7.9	5.52[c]		47 / 2.04		12 / 0.40	222 / 3.64		65 / 1.83			0.0		Tot. Alk. 246	450[e]	27	276	74	1		
7/2 1010	4.3	66	10.6	113	721	7.9	5.62[c]		50 / 2.18		4 / 0.13	240 / 3.93		54 / 1.52			0.1		Tot Alk. 248	455[e]	28	281	78	1		
8/3 1100	2.5	68	10.9	118	696	7.9	5.04[c]		44 / 1.91		6 / 0.20	232 / 3.80		61 / 1.72			0.2		Tot. Alk. 244	439[e]	27	252	52	4		
9/9 0715	2.5	65	9.6	101	699	7.9	76 / 3.79	20 / 1.61	44 / 1.91	5.3 / 0.14	0.0 / 0.00	246 / 4.03	75 / 1.56	63 / 1.78	0.7 / 0.01	0.4 / 0.02	0.1	37	PO_4 0.35 Al 0.09[d] Cu 0.01	442[f]	26	270	68	3		
10/7 0900	6.1	62	9.9	101	803	7.9	6.18[c]		58 / 2.52		0.0 / 0.00	252 / 4.13		92 / 2.59			0.2			507[e]	29	309	102	2		
11/4 0845	5.2	52	9.5	86	810	7.5	5.98[c]		56 / 2.44		0.0 / 0.00	262 / 4.29		76 / 2.14			0.2			511[e]	29	299	84	3		
12/9 0810	4.1	45	10.8	89	810	7.7	6.06[c]		67 / 2.91		0.0 / 0.00	261 / 4.28		80 / 2.26			0.1			511[e]	32	303	89	8		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-3

ANALYSES OF SURFACE WATER

CENTRAL COASTAL REGION (NO. [illegible])

UVAS CREEK NEAR MORGAN HILL (STA. 96)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25° C)	pH [a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform [h] MPN/ml	Analyzed by [i]
1971																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	12	172	[illegible]	[illegible]	Median [illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
[illegible]	Not Available	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Minimum [illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible] Alk 13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible] Al [illegible] [d]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible] Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	Not Available	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] Al [illegible] [d]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible footnotes a–i]

TABLE B-4

ANALYSES OF SURFACE WATER

Date and time sampled P S T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
[illegible]																										
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						[illegible]					[illegible]
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

AMERICAN RIVER AT NIMBUS DAM (STA. 22a)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/15 1400	1,100 (est.)	57	12.5	120	80.0	7.3[a]	8.4 / 0.42	2.4 / 0.18	2.8 / 0.12	0.6 / 0.02	0.0 / 0.00	33 / 0.54	3.8 / 0.08	6.2 / 0.17	0.3 / 0.00	0.0 / 0.00	0.0	10		50[f]	16	31	4		Median 112.	
2/5 1320	1,350	51	12.0	107	74.8	7.3[a]	7.6 / 0.38	2.3 / 0.19	3.5 / 0.15	0.4 / 0.01	0.0 / 0.00	30 / 0.49	2.3 / 0.05	7.0 / 0.20	0.0 / 0.00	0.0 / 0.00	0.0	10		48[f]	21	29	4		Maximum 2,400.	
3/11 1545	3,240	50	12.0	106	67.6	7.3[a]	7.2 / 0.36	2.3 / 0.19	2.4 / 0.10	0.5 / 0.01	0.0 / 0.00	30 / 0.49	1.9 / 0.04	4.8 / 0.14	0.4 / 0.01	0.0 / 0.00	0.0	11		46[f]	15	28	3		Minimum 0.23	
4/8 1545	1,400	54	10.7	99	63.7	7.1[a]	6.6 / 0.33	2.1 / 0.17	2.4 / 0.10	0.5 / 0.01	0.0 / 0.00	29 / 0.48	3.5 / 0.07	3.6 / 0.10	0.0 / 0.00	0.0 / 0.00	0.0	12		45[f]	16	25	1			
5/12 0720	1,020	56	10.2	97	63.7	7.1[a]	7.6 / 0.38	1.7 / 0.14	2.8 / 0.12	0.3 / 0.01	0.0 / 0.00	29 / 0.48	3.8 / 0.08	3.0 / 0.08	0.0 / 0.00	0.1 / 0.01	0.0	10	Fe 0.02 Al 0.02[d] PO_4 0.00	43[f]	18	26	2	1		
6/10 1445	1,570	65	10.2	108	110	7.4[a]	13 / 0.65	2.8 / 0.23	4.5 / 0.20	1.0 / 0.03	0.0 / 0.00	40 / 0.66	5.8 / 0.12	12 / 0.34	0.2 / 0.00	0.1 / 0.01	0.0	9.6		69[f]	18	44	11			
7/3 0955	3,360	60	10.6	106	50.6	7.1[a]	6.4 / 0.32	1.0 / 0.08	2.1 / 0.09	1.2 / 0.03	0.0 / 0.00	25 / 0.41	2.0 / 0.04	2.2 / 0.06	0.0 / 0.00	0.2 / 0.01	0.0	18		45[f]	17	20	0			
8/6 0830	4,100	61	8.6	86	48.2	6.8[a]	6.4 / 0.32	0.7 / 0.06	2.6 / 0.11	0.9 / 0.02	0.0 / 0.00	23 / 0.38	3.0 / 0.06	2.0 / 0.06	0.0 / 0.00	0.1 / 0.01	0.0	15		42[f]	22	19	0			
9/7 0645	1,250	71	7.6	85	58.8	7.1[b]	6.4 / 0.32	1.6 / 0.13	2.1 / 0.09	1.3 / 0.03	0.0 / 0.00	27 / 0.44	2.6 / 0.05	2.5 / 0.07	0.1 / 0.00	0.0 / 0.00	0.0	10	PO_4 0.05[d]	40[f]	16	23	1	1		
10/12 1145	692	71	9.4	82	91.2	7.3[a]	8.0 / 0.40	2.2 / 0.18	3.1 / 0.13	0.5 / 0.01	0.0 / 0.00	35 / 0.57	2.0 / 0.04	4.5 / 0.13	0.0 / 0.00	0.1 / 0.01	0.0	8.6		46[f]	18	29	0			
11/9 1500	628	62	10.1	102	76.2	7.3[a]	8.0 / 0.40	2.4 / 0.20	2.9 / 0.13	0.8 / 0.02	0.0 / 0.00	33 / 0.54	2.0 / 0.04	4.8 / 0.14	0.4 / 0.01	0.1 / 0.01	0.0	8.5		46[f]	17	30	3			
12/1 0900	596	58	10.4	101	88.7	7.3[a]	0.74[c]		3.1 / 0.13		0.0 / 0.00	35 / 0.57		7.2 / 0.20			0.0			59[e]	15	37	8	1		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

AMERICAN RIVER AT SACRAMENTO (STA. 22)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO₃)	Bicarbonate (HCO₃)	Sulfate (SO₄)	Chloride (Cl)	Nitrate (NO₃)	Fluoride (F)	Boron (B)	Silica (SiO₂)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as CaCO₃ Total ppm	Hardness as CaCO₃ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/19 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	67.4	7.3[b]	[illegible] / 0.56[c]		2.4 / 0.10		[illegible] / 0.00	31 / 0.51		3.8 / 0.11			[illegible]			48[e]	16	27	2	5	Median [illegible]	
[illegible]	[illegible]	51	[illegible]	[illegible]	[illegible]	7.1[a]	[illegible]		2.6 / [illegible]		[illegible] / 0.00	25 / [illegible]		3.8 / [illegible]			.1			47[e]	18	25	5	[illegible]	Maximum [illegible]	
[illegible]	[illegible]	51	11.7	[illegible]	[illegible]	7.1[a]	[illegible] / 0.59[c]		2.[illegible] / 0.09		0.0 / 0.00	28 / [illegible]		4.0 / 0.11			[illegible]			45[e]	16	26	[illegible]	[illegible]	Minimum [illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1[a]	[illegible] / 0.60[c]		2.0 / 0.09		[illegible] / 0.00	30 / 0.49		2.5 / [illegible]			[illegible]			47[e]	13	[illegible]	[illegible]	20		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.9 / 0.16	2.[illegible] / [illegible]	[illegible] / 0.01	[illegible] / 0.00	[illegible]	2.9 / 0.06	2.2 / 0.06	[illegible] / 0.00	0.0 / 0.00	0.[illegible]	[illegible]	Fe [illegible] Al 0.0[illegible][d] PO₄ [illegible]	41[f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1[a]	[illegible]		3.4 / [illegible]		[illegible]	28 / [illegible]		3.0 / 0.08			[illegible]			47[e]	24	[illegible]	[illegible]	4		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible][a]	[illegible]		2.[illegible] / 0.11		0.[illegible] / 0.00	25 / 0.41		1.4 / 0.04			[illegible]			[illegible][e]	9	[illegible]	[illegible]	4		
[illegible]	[illegible]	[illegible]	8.[illegible]	[illegible]	[illegible]	[illegible][a]	[illegible]		2.1 / 0.09		[illegible] / 0.00	22 / [illegible]		2.[illegible] / [illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	58.6	[illegible]	[illegible].6 / [illegible]	1.7 / 0.14	[illegible].1 / 0.10	1.1 / 0.03	[illegible]	30 / [illegible]	1.0 / 0.02	3.2 / 0.09	0.6 / 0.01	[illegible]	[illegible]	[illegible]	PO₄ [illegible][d]	42[f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3[a]	0.[illegible]		[illegible]		[illegible]	32 / [illegible]		5.8 / 0.16			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.[illegible][a]	[illegible]		[illegible]		[illegible] / 0.00	[illegible]		4.5 / 0.13			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	72.0	[illegible][a]	[illegible]		[illegible]		[illegible]	33 / [illegible]		3.5 / [illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible footnotes a–i]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

AMERICAN RIVER, MIDDLE FORK, NEAR AUBURN (STA. 22b)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/15 1005	876	53	12.9	119	38.8	7.0	4.8 / 0.24	0.5 / 0.04	2.0 / 0.09	0.1 / 0.00	0.0 / 0.00	16 / 0.26	2.9 / 0.06	2.6 / 0.07	0.3 / 0.00	0.0 / 0.00	0.0	9.1		30[f]	24	14	1		Median 2.3	
2/12 1300	634	40	13.2	102	68.5	7.2	7.6 / 0.38	2.1 / 0.17	2.6 / 0.11	0.4 / 0.01	0.0 / 0.00	30 / 0.49	4.8 / 0.10	3.8 / 0.11	0.2 / 0.00	0.0 / 0.00	0.0	14		50[f]	16	28	3		Maximum 230.	
3/10 0845	1,240	46	11.5	96	37.0	7.2	4.6 / 0.23	0.6 / 0.05	2.1 / 0.09	0.1 / 0.00	0.0 / 0.00	18 / 0.30	2.3 / 0.05	1.1 / 0.03	0.0 / 0.00	0.0 / 0.00	0.0	11		31[f]	24	14	0		Minimum 0.06	
4/13 0800	2,250	53	10.7	98	28.8	7.2	3.0 / 0.15	2.1 / 0.17	1.5 / 0.07	0.0 / 0.00	0.0 / 0.00	20 / 0.33	2.9 / 0.06	1.0 / 0.03	0.0 / 0.00	0.0 / 0.00	0.0	10		30[f]	18	16	0			
5/14 0830	1,750	58	10.2	99	30.4	7.3	3.8 / 0.19	0.1 / 0.01	1.6 / 0.07	0.3 / 0.01	0.0 / 0.00	14 / 0.23	1.5 / 0.03	1.5 / 0.04	0.0 / 0.00	0.0 / 0.00	0.0	8.8	Fe 0.01 Al 0.04[d] PO_4 0.00	25[f]	25	10	0	1		
6/11 0810	535	64	9.0	94	42.6	7.3	4.6 / 0.23	1.1 / 0.09	2.2 / 0.10	0.6 / 0.02	0.0 / 0.00	20 / 0.33	2.9 / 0.06	3.0 / 0.08	0.2 / 0.00	0.0 / 0.00	0.0	11		36[f]	23	16	0			
7/10 0900	127	75	8.3	97	60.2	7.3	0.50[c]		3.0 / 0.13		0.0 / 0.00	26 / 0.43		4.0 / 0.11			0.0			46[e]	21	25	4	1		
8/7 0845	55	76	8.0	95	79.2	7.1	0.64[c]		3.1 / 0.13		0.0 / 0.00	34 / 0.56		4.0 / 0.11			0.1			60[e]	17	32	4	1		
9/4 1130	42	73	8.4	96	90.8	7.4	9.8 / 0.49	2.3 / 0.19	3.6 / 0.16	0.8 / 0.02	0.0 / 0.00	36 / 0.59	5.0 / 0.10	5.8 / 0.16	0.1 / 0.00	0.1 / 0.01	0.0	14	Fe 0.01 PO_4 0.00[d] Cu 0.02 Al 0.04	60[f]	19	34	4	0.5		
10/14 1000	65	65	8.1	86	89.1	7.5	0.72[c]		3.4 / 0.15		0.0 / 0.00	36 / 0.59		6.2 / 0.17			0.0			68[e]	17	36	6	1		
11/12 0900	53	54	10.1	94	94.0	7.4	0.74[c]		3.8 / 0.17		0.0 / 0.00	36 / 0.59		5.5 / 0.16			0.0			72[e]	19	37	7	1		
12/3 0925	52	44	11.8	98	94.7	7.1	0.74[c]		3.9 / 0.17		0.0 / 0.00	37 / 0.61		5.2 / 0.15			0.1			72[e]	19	37	7	2		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

AMERICAN RIVER, SOUTH FORK, NEAR LOTUS (STA. 22c)

Date and time sampled P S T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/15 1130	643	43	12.6	101	44.4	7.0	4.3 / 0.21	1.1 / 0.09	2.2 / 0.10	[illegible].4 / 0.01	0.0 / 0.00	18 / 0.30	1.9 / 0.04	3.4 / 0.10	0.3 / 0.00	[illegible] / 0.00	0.0	10		33[f]	24	[illegible]	[illegible]		Median 23	
2/12 1110	700	40	12.7	98	80.0	7.2	6.4 / 0.32	3.9 / 0.32	3.[illegible] / 0.13	0.[illegible] / 0.02	0.0 / 0.00	34 / 0.56	4.8 / 0.10	4.5 / 0.13	1.2 / 0.02	0.[illegible] / 0.00	0.0	16		57[f]	16	32	4		Maximum [illegible]	
3/19 1000	870	45	11.8	97	39.8	7.[illegible]	5.0 / 0.25	[illegible].4 / 0.03	2.6 / 0.11	[illegible].4 / 0.01	0.0 / 0.00	20 / 0.33	1.[illegible] / 0.02	1.4 / 0.04	0.1 / 0.00	0.[illegible] / 0.00	[illegible].0	13		34[f]	28	[illegible]	[illegible]		Minimum [illegible]	
4/15 1[illegible]	1,280	54	10.2	95	26.3	7.1	3.6 / 0.18	1.2 / 0.10	1.6 / 0.07	0.3 / 0.01	0.0 / 0.00	20 / 0.33	0.0 / 0.00	1.5 / 0.04	0.0 / 0.00	0.0 / 0.00	0.[illegible]	9.8		28[f]	19	[illegible]	[illegible]			
[illegible]/14 0700	1,380	58	9.7	94	25.8	7.2	3.2 / 0.16	0.5 / 0.04	1.8 / 0.08	0.5 / 0.01	0.0 / 0.00	14 / 0.23	1.9 / 0.04	0.6 / 0.02	0.2 / 0.00	[illegible].1 / 0.01	0.0	8	Al 0.[illegible] PO_4 [illegible] [d]	24[f]	28	[illegible]	[illegible]	4		
6/11 0945	[illegible]	64	8.8	92	45.1	7.5	4.8 / [illegible].24	1.5 / 0.12	2.8 / 0.12	0.7 / 0.02	0.0 / 0.00	20 / 0.33	2.9 / 0.06	3.8 / 0.11	0.2 / 0.00	[illegible] / 0.00	[illegible]	8.8		36[f]	24	[illegible]	[illegible]			
7/9 1200	143	76	8.6	102	48.0	7.1	0.36[g]		3.4 / 0.15		[illegible].0 / 0.00	22 / 0.36		4.0 / 0.11			[illegible]			3[illegible][e]	29	[illegible]	[illegible]	[illegible]		
8/6 0955	107	74	8.2	[illegible]	53.6	7.3	0.40[g]		3.5 / 0.15		0.0 / 0.00	23 / 0.38		4.0 / 0.11			[illegible]			42[e]	[illegible]	[illegible]	[illegible]	[illegible]		
9/[illegible] 1320	107	73	8.4	[illegible]	58.7	7.4	5.6 / [illegible]	1.3 / 0.11	3.4 / 0.15	0.9 / 0.02	[illegible] / 0.00	24 / 0.39	1.0 / 0.02	[illegible] / [illegible]	0.2 / 0.00	[illegible] / 0.0[illegible]	[illegible]	11	Fe [illegible] Cu [illegible] [d] Al [illegible] PO_4 [illegible]	41[f]	[illegible]	[illegible]	[illegible]	[illegible]		
10/14 [illegible]	155	59	[illegible]	83	57.7	7.3	[illegible]		2.8 / 0.12		0.0 / 0.00	21 / 0.34		7.2 / [illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
11/12 1[illegible]	[illegible]	48	9.8	84	60.6	7.3	[illegible][g]		4.1 / 0.18		[illegible] / 0.00	26 / 0.43		4.0 / 0.11			[illegible]			[illegible][e]	29	22	[illegible]	[illegible]		
12/[illegible] [illegible]	Not available	41	12.1	[illegible]	73.3	7.[illegible]	0.56[g]		3.9 / 0.17		0.0 / 0.00	30 / 0.49		6.5 / 0.18			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		

Values in mineral constituent columns are given as parts per million / equivalents per million.

a Field pH.

b Laboratory pH.

c [illegible]

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] except as shown.

e [illegible]

f [illegible]

g [illegible]

h [illegible]

i [illegible] Los Angeles Department of Water and Power [illegible] Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO.)

ANTELOPE CREEK NEAR MOUTH (STA. 8Bc)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/6 1340		48	11.0	94	99.0	7.2	8.0 / 0.40	4.6 / 0.38	4.4 / 0.19	1.3 / 0.03	0.0 / 0.00	29 / 0.48	6.7 / 0.14	10 / 0.28	6.5 / 0.10	0.1 / 0.01	0.4	25		81[f]	19	39	15			
2/2 1440		49	10.8	94	139	7.3	11 / 0.55	6.9 / 0.57	8.4 / 0.39	0.7 / 0.02	0.0 / 0.00	78 / 1.28	3.8 / 0.08	6.0 / 0.17	0.2 / 0.00	0.0 / 0.00	0.0	38		113[f]	25	56	0			
3/13 1240	12 (est.)	60	11.6	116	327	7.1	25 / 1.25	20 / 1.61	12 / 0.52	1.6 / 0.04	0.0 / 0.00	160 / 2.62	13 / 0.27	14 / 0.39	6.7 / 0.11	0.0 / 0.00	0.1	46		217[f]	15	143	12			
4/10 0900	16 (est.)	59	8.9	87	169	7.1	12 / 0.60	6.6 / 0.54	11 / 0.48	3.0 / 0.08	0.0 / 0.00	70 / 1.15	14 / 0.29	10 / 0.28	0.2 / 0.00	0.0 / 0.00	0.2	34		125[f]	28	57	0			
5/11 1130	8.5 (est.)	66	8.3	88	176	7.3	7.6 / 0.38	9.0 / 0.74	12 / 0.52	3.1 / 0.08	0.0 / 0.00	67 / 1.10	15 / 0.31	12 / 0.34	1.0 / 0.02	0.2 / 0.01	0.4	34	Fe 0.13 Al 0.12[d] PO_4 0.35	127[f]	30	56	1	2		
6/1 1445	8 (est.)	74	7.8	91	170	7.3	12 / 0.60	7.3 / 0.60	12 / 0.52	4.0 / 0.10	0.0 / 0.00	66 / 1.08	31 / 0.65	12 / 0.34	1.2 / 0.02	0.1 / 0.01	0.3	40		153[f]	29	60	6			
7/15 0915	6 (est.)	75	6.5	76	255	7.3	19 / 0.95	9.8 / 0.81	17 / 0.74	5.9 / 0.15	0.0 / 0.00	113 / 1.85	14 / 0.29	17 / 0.48	0.8 / 0.01	0.2 / 0.01	0.4	43		183[f]	28	88	0			
8/10 1245	4 (est.)	82	8.2	103	284	7.4	19 / 0.95	14 / 1.19	16 / 0.70	5.4 / 0.14	0.0 / 0.00	130 / 2.13	16 / 0.33	18 / 0.51	0.7 / 0.01	0.1 / 0.01	0.5	54		208[f]	23	107	0			
9/1 1320	2 (est.)	74	8.2	95	250	7.4	17 / 0.85	9.6 / 0.79	18 / 0.78	5.3 / 0.14	0.0 / 0.00	104 / 1.70	12 / 0.25	22 / 0.62	0.3 / 0.00	0.2 / 0.01	0.6	44	Fe 0.02 Zn 0.01[d] Al 0.11 Cu 0.01 PO_4 0.40	180[f]	30	82	0	10		
10/12 1440	4.5 (est.)	68	8.3	90	291	7.4	20 / 1.00	9.2 / 0.76	24 / 1.04	5.0 / 0.13	0.0 / 0.00	93 / 1.52	21 / 0.44	32 / 0.90	0.0 / 0.00	0.2 / 0.01	0.7	41		199[f]	35	88	12			
11/3 0900		52	9.6	87	227	7.4	1.34[c]		19 / 0.83		0.0 / 0.00	80 / 1.31		24 / 0.68			0.6			167[e]	38	67	1	5		
12/1 1215	2 (est.)	45	10.1	83	276	7.3	19 / 0.95	13 / 1.03	20 / 0.87	4.2 / 0.11	0.0 / 0.00	139 / 2.28	7.0 / 0.15	16 / 0.45	0.5 / 0.01	0.2 / 0.01	0.5	41		189[f]	29	99	0			

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

ANTELOPE CREEK NEAR RED BLUFF (STA. 88a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total[f] dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	94	[illegible]	7.3	[illegible]	5.7 / 0.47	6.5 / [illegible]	1.1 / [illegible]	0 / .00	[illegible]	0.6 / [illegible]	8.2 / [illegible]	2.1 / 0.03	[illegible]	[illegible]	21		96	22	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.48	6.9 / [illegible]	[illegible]	[illegible]	[illegible]	3.8 / 0.08	[illegible] / .17	[illegible]	[illegible]	0.0	25		[illegible]	[illegible]	[illegible]	[illegible]			
3/13 [illegible]	[illegible]	[illegible]	10.8	99	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.01	[illegible] / 0.19	0.0 / 0.00	[illegible]	[illegible]	30		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	58	[illegible]	98	[illegible]	7.5	8.8 / [illegible]	4.6 / .38	6.1 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	68	[illegible]	[illegible]	[illegible]	7.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / [illegible].11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible] Al [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	Not sampled																									
7/[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.48	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
9/[illegible]	Not sampled																									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / .58	[illegible]	[illegible] / .58	[illegible]	[illegible] / 1.44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / .00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			

[illegible footnotes]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

BATTLE CREEK NEAR COTTONWOOD (STA. 88b)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/5 1330	671				111	7.5[b]	7.6 / 0.38	6.1 / 0.50	6.6 / 0.29	1.9 / 0.05	0.0 / 0.00	57 / 0.93	6.7 / 0.14	4.0 / 0.11	1.3 / 0.02	0.0 / 0.00	0.0	34		96[f]	24	44	0			
2/9 1100	475 (est.)	42			134	7.8[b]	10 / 0.50	7.1 / 0.58	7.7 / 0.33	2.1 / 0.05	0.0 / 0.00	79 / 1.29	2.9 / 0.06	3.0 / 0.08	0.0 / 0.00	0.0 / 0.00	0.0	44		116[f]	23	54	0			
3/11 1230	396	51	12.0	107	122	7.4[b]	9.6 / 0.48	5.5 / 0.45	6.5 / 0.28	1.9 / 0.05	0.0 / 0.00	71 / 1.16	3.3 / 0.07	1.5 / 0.04	0.2 / 0.00	0.0 / 0.00	0.0	42		106[f]	22	46	0			
4/15 1310	361	57	10.6	101	117	7.7[a]	8.8 / 0.44	6.3 / 0.52	6.5 / 0.28	1.4 / 0.04	1 / 0.03	69 / 1.13	3.8 / 0.08	1.0 / 0.03	0.0 / 0.00	0.0 / 0.00	0.0	43		106[f]	22	48	0			
5/15 0900	361	54	10.9	101	118	7.8[b]	8.0 / 0.40	6.1 / 0.50	6.5 / 0.28	1.9 / 0.05	0.0 / 0.00	71 / 1.16	0.0 / 0.00	2.0 / 0.06	0.5 / 0.01	0.1 / 0.01	0.0	42	Fe 0.03 Al 0.05 d PO_4 0.20	102[f]	23	45	0	3		
6/16 1345	215	62	10.0	102	135	8.1[b]	9.2 / 0.46	7.1 / 0.58	7.5 / 0.33	1.8 / 0.05	0.0 / 0.00	79 / 1.29	3.0 / 0.06	1.5 / 0.04	0.0 / 0.00	0.0 / 0.00	0.08	53	Fe 0.01	122[f]	23	52	0			
7/9 1125	196	64	8.7	91	154	8.1[b]	12 / 0.60	5.8 / 0.48	8.7 / 0.38	2.6 / 0.07	0.0 / 0.00	84 / 1.38	4.0 / 0.08	1.8 / 0.05	0.0 / 0.00	0.0 / 0.00	0.0	48		124[f]	25	54	0			
8/11 0900	167	63	9.4	97	152	7.5[a]	1.20[c]		9.1 / 0.40		0.0 / 0.00	88 / 1.44		1.5 / 0.04			0.1			132[e]	25	60	0	20		
9/1 0935	172	59	10.2	100	148	7.7[a]	11 / 0.55	7.4 / 0.61	8.8 / 0.38	2.2 / 0.06	0.0 / 0.00	88 / 1.44	3.0 / 0.06	4.0 / 0.11	0.0 / 0.00	0.0 / 0.00	0.1	47	Fe 0.01 Al 0.02 d PO_4 0.15	127[f]	24	58	0	10		
10/13 1145	215	56	10.0	96	149	7.8[b]	1.16[c]		10 / 0.44		0.0 / 0.00	92 / 1.51		3.5 / 0.10			0.0			130[e]	28	58	0	2		
11/11 1015	189	49	11.4	99	149	8.0[a]	11 / 0.55	7.4 / 0.61	9.7 / 0.42		0.0 / 0.00	90 / 1.48		3.8 / 0.11			0.0			130[e]	27	58	0	4		
12/10 1140	202	44	12.6	102	147	8.2[a]	1.16[c]		9.0 / 0.39		0.0 / 0.00	90 / 1.48		3.0 / 0.08			0.0			128[e]	25	58	0	4		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

[illegible]NTRAL VALLEY REGION (NO. [illegible])

BEAR CREEK AT MERCED (STA. [illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
							Mineral constituents in parts per million / equivalents per million																			
[illegible]																										[illegible]
[illegible]		[illegible]	9.4	[illegible]	[illegible]	6.[illegible]	[illegible] / 1.60	[illegible] / 1.68	[illegible] / [illegible]	[illegible] / 0.07	[illegible] / 0.00	[illegible] / 3.[illegible]	24 / [illegible]	[illegible] / 0.41	[illegible] / 0.04	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	34 / [illegible]	[illegible] / 1.60	[illegible]	[illegible]	[illegible] / 0.00	[illegible]	29 / 0.60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0 / 0.00	178 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	Not sampled																									
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.66	[illegible]	[illegible]	[illegible] / 0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / [illegible].08	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10 / 0.44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.1 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17 / [illegible]	[illegible]	[illegible]	[illegible] / 1.08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			

[illegible footnotes]

TABLE B-4
ANALYSES OF SURFACE WATER
CENTRAL VALLEY REGION (NO. 5)
BEAR RIVER AT MOUTH (STA. 20b)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/9 1115	Not Available	52	10.4	94	223	7.3	23 1.15	9.4 0.77	10 0.44	3.2 0.08	0.0 0.00	67 1.10	40 0.83	16 0.45	1.8 0.03	0.1 0.01	0.1	15		152[f]	18	96	41			
2/9 1700	Not Available	46	12.1	101	198	7.3	20 1.00	7.3 0.60	6.3 0.27	0.7 0.02	0.0 0.00	66 1.08	27 0.56	9.0 0.25	0.2 0.00	0.1 0.01	0.0	10		114[f]	14	80	26			
3/11 1110	Not Available	51	11.6	104	84.0	7.3	8.8 0.44	2.9 0.24	3.2 0.14	0.4 0.01	0.0 0.00	30 0.49	11 0.23	4.2 0.12	0.0 0.00	0.0 0.00	0.0	11		56[f]	17	34	9			
4/14 1720	10 est.	74	9.2	106	268	7.9	22 1.10	13 1.10	12 0.52	3.5 0.09	0.0 0.00	125 2.05	18 0.37	14 0.39	0.0 0.00	0.1 0.01	0.1	21		166[f]	19	110	8			
5/12 1715	6.4 est.	82	7.9	99	477	7.7	28 1.40	18 1.46	41 1.78	6.2 0.16	0.0 0.00	163 2.67	12 0.25	66 1.86	0.4 0.01	0.2 0.01	0.1	43	Fe 0.15 Al 0.24[d] PO_4 0.10	295[f]	37	143	9	3		
6/9 1320	5 est.	73	8.9	102	505	7.5	34 1.70	22 1.78	42 1.83	5.4 0.14	0.0 0.00	208 3.41	13 0.27	60 1.69	0.2 0.00	0.2 0.01	0.1	55		334[f]	34	174	3			
7/7 0740	Not Sampled - Dry																									
8/7	Not Sampled - Dry																									
9/1 1520	1 est.	80	8.3	102	513	7.7	34 1.70	23 1.90	36 1.57	8.1 0.21	0.0 0.00	213 3.49	15 0.31	52 1.47	0.7 0.01	0.2 0.01	0.1	58	Fe 0.04 Al 0.32[d] PO_4 0.15	332[f]	29	180	5	3		
10/14 1815	Not Sampled - No Flow																									
11/12 1600	Not Sampled - Dry																									
12/4 0940	Not Sampled - Dry																									

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

BEAR RIVER NEAR WHEATLAND (STA. [illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO3)	Bicarbonate (HCO3)	Sulfate (SO4)	Chloride (Cl)	Nitrate (NO3)	Fluoride (F)	Boron (B)	Silica (SiO2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as CaCO3 Total ppm	Hardness as CaCO3 N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
[illegible]																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	187	[illegible]	[illegible]	96	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	not sampled [illegible]																									
[illegible]	not sampled [illegible]																									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

a [illegible]

b [illegible]

c [illegible]

d [illegible]

e [illegible]

f [illegible]

g [illegible]

h [illegible]

i [illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

BIG CHICO CREEK AT CHICO (STA. 85a)

Mineral constituents in parts per million / equivalents per million (values shown as ppm / epm)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/7 1445	102	48	11.5	99	107	7.2	8.8 / 0.44	4.4 / 0.36	6.2 / 0.27	0.7 / 0.02	0.0 / 0.00	52 / 0.85	3.8 / 0.08	5.2 / 0.15	0.0 / 0.00	0.0 / 0.00	0.1	27		82	25	40	0			
2/10 1350	16	48	11.3	97	161	7.2	14 / 0.70	6.6 / 0.54	9.8 / 0.43	0.7 / 0.02	0.0 / 0.00	78 / 1.28	7.7 / 0.16	10 / 0.28	0.0 / 0.00	0.1 / 0.01	0.1	31		118	25	62	0			
3/12 0950	109	50	11.5	101	120	7.6	10 / 0.50	5.5 / 0.45	6.2 / 0.27	0.6 / 0.02	0.0 / 0.00	64 / 1.05	2.3 / 0.05	6.4 / 0.18	0.1 / 0.00	0.0 / 0.00	0.1	32		95	22	47	0			
4/10 0720	55	56	9.9	94	150	7.5	13 / 0.65	7.7 / 0.63	8.0 / 0.35	0.8 / 0.02	0.0 / 0.00	79 / 1.29	9.6 / 0.20	6.5 / 0.18	0.0 / 0.00	0.0 / 0.00	0.0	36		121	21	64	0			
5/8 1030	29	62	9.3	94	180	7.7	14 / 0.70	8.0 / 0.66	11 / 0.48	1.0 / 0.03	0.0 / 0.00	95 / 1.56	4.8 / 0.10	9.0 / 0.25	1.0 / 0.02	0.2 / 0.01	0.1	38	Fe 0.02 Al 0.09 PO_4 0.25[d]	134	26	68	0			
6/11 1300	19	64	9.0	94	197	7.6	16 / 0.80	8.3 / 0.68	14 / 0.61	1.2 / 0.03	0.0 / 0.00	104 / 1.70	5.8 / 0.12	10 / 0.28	0.8 / 0.01	0.0 / 0.00	0.1	47		154	29	74	0			
7/14 1625	11	74	6.2	71	212	7.8	18 / 0.90	7.3 / 0.60	14 / 0.61	1.2 / 0.03	0.0 / 0.00	110 / 1.80	4.0 / 0.08	10 / 0.28	0.8 / 0.01	0.0 / 0.00	0.1	31		140	29	75	0			
8/10 1040	18	78	7.5	91	219	7.8	17 / 0.85	8.9 / 0.73	18 / 0.78	2.5 / 0.06	0.0 / 0.00	112 / 1.84	18 / 0.37	11 / 0.31	0.1 / 0.00	0.0 / 0.00	0.1	37		168	32	79	0			
9/1 1045	Not Sampled - Ponded																									
10/12 1200	9.2	63	8.6	89	217	7.5	17 / 0.85	8.6 / 0.71	17 / 0.74	1.6 / 0.04	0.0 / 0.00	112 / 1.84	7.0 / 0.15	13 / 0.37	0.3 / 0.00	0.1 / 0.01	0.2	36		156	32	78	0			
11/2 1300	6.0	54	10.3	95	217	7.6	19 / 0.95	7.9 / 0.65	17 / 0.74	2.0 / 0.05	0.0 / 0.00	115 / 1.88	5.0 / 0.10	12 / 0.34	0.0 / 0.00	0.0 / 0.00	0.2	40		160	31	80	0			
12/1 1110	9.2	44	11.5	94	222	7.5	17 / 0.85	8.4 / 0.69	17 / 0.74	1.5 / 0.04	0.0 / 0.00	113 / 1.85	4.0 / 0.08	14 / 0.39	0.0 / 0.00	0.1 / 0.01	0.2	41		159	32	77	0			

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

[illegible]

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										
1/7 [illegible]	239	[illegible]	11.7	99	[illegible]	7.1	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	119	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

BUTTE CREEK NEAR CHICO (STA. 84)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/8 0820	682	46	11.9	100	88.7	7.1[a]	0.80[c]		3.0 / 0.13		0.0 / 0.00	46 / 0.75		2.0 / 0.06			0.0			66[e]	14	40	2	10	Median 23.	
2/10 1300	432	40	12.8	98	97.5	7.2[a]	0.88[c]		3.5 / 0.15		0.0 / 0.00	54 / 0.89		2.0 / 0.06			0.1			72[e]	15	44	0	10	Maximum 620.	
3/12 0910	456	46	11.6	97	76.1	7.6[a]	0.72[c]		2.8 / 0.12		0.0 / 0.00	44 / 0.72		2.0 / 0.06			0.0			56[e]	14	36	0	10	Minimum 0.23	
4/9 1600	444	56	10.3	98	71.4	7.3[a]	0.62[c]		2.6 / 0.11		0.0 / 0.00	40 / 0.66		1.0 / 0.03			0.0			53[e]	15	31	0	2		
5/8 0815	323	54	10.1	93	77.2	7.3[a]	6.8 / 0.34	3.9 / 0.32	2.8 / 0.12	0.5 / 0.01	0.0 / 0.00	45 / 0.74	1.0 / 0.02	1.0 / 0.03	0.3 / 0.00	0.0 / 0.00	0.0	21	PO_4 0.00[d]	59[f]	15	33	0	0		
6/11 1400	184	64	9.2	96	93.5	7.3[a]	0.80[c]		4.0 / 0.17		0.0 / 0.00	53 / 0.87		2.0 / 0.06			0.0			69[e]	18	40	0	12		
7/13 1430	140	72	8.7	99	105	8.1[b]	0.96[c]		4.4 / 0.19		0.0 / 0.00	64 / 1.05		0.8 / 0.02			0.0			78[e]	17	48	0	1		
8/10 0920	134	68	8.5	93	105	7.4[a]	0.94[c]		3.8 / 0.17		0.0 / 0.00	67 / 1.10		0.2 / 0.01			0.0			78[e]	15	47	0	3		
9/1 0915	119	60	9.9	99	112	7.5[a]	14 / 0.70	3.6 / 0.30	3.7 / 0.16	1.6 / 0.04	0.0 / 0.00	66 / 1.08	1.0 / 0.02	1.5 / 0.04	0.5 / 0.01	0.1 / 0.01	0.0	24	PO_4 0.1 Al 0.03 Zn 0.01[d]	83[f]	13	50	0	3		
10/12 1020	137	55	10.1	96	115	7.5[a]	1.12[c]		4.6 / 0.20		0.0 / 0.00	71 / 1.16		5.0 / 0.14			0.1			85[e]	15	56	0	1		
11/2 1400	76	51	10.6	95	124	7.5[a]	1.12[c]		3.9 / 0.17		0.0 / 0.00	76 / 1.25		1.5 / 0.04			0.1			92[e]	13	56	0	1		
12/1 0945	113	41	12.2	96	119	7.3[a]	1.00[c]		4.8 / 0.21		0.0 / 0.00	72 / 1.18		2.2 / 0.06			0.0			88[e]	17	50	0	20		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

[illegible]

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH [a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform [h] MPN/ml	Analyzed by [i]
							Mineral constituents in parts per million / equivalents per million																			
[illegible]																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	1.1	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	266 / 4.36		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		70 / 1.97			[illegible]		[illegible] Alk. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible] Alk. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible] Alk. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

CACHE CREEK NEAR LOWER LAKE (STA. 42)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO3)	Bicarbonate (HCO3)	Sulfate (SO4)	Chloride (Cl)	Nitrate (NO3)	Fluoride (F)	Boron (B)	Silica (SiO2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as CaCO3 Total ppm	Hardness as CaCO3 N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/	Not Sampled																								Median 0.2	
2/6 1255	1.45	59	10.6	104	199	7.7[a]	 1.68[c]		9.7 0.42		0.0 0.00	92 1.51		7.0 0.20			0.3			110[e]	20	84	9	10	Maximum 2,400.	
3/9 1230	9.1	53	11.0	100	252	7.7[a]	 2.20[c]		9.4 0.41		0.0 0.00	135 2.21		5.1 0.14			0.7			140[e]	16	110	0	3	Minimum 0.23	
4/2 1500	9.45	59	9.8	96	301	7.6[a]	 2.64[c]		15 0.65		0.0 0.00	146 2.39		8.5 0.24			0.4			167[e]	20	132	12	15		
5/12 1345	341	68	7.9	86	242	7.9[b]	22 1.10	13 1.10	9.8 0.43	1.9 0.05	0.0 0.00	142 2.33	6.7 0.14	6.0 0.17	2.0 0.03	0.1 0.01	0.6	1.1	PO4 0.20 Al 0.01[g]	133[f]	16	110	0	20		
6/10 1600	431	68	5.6	61	248	7.7[a]	 2.28[c]		9.5 0.41		0.0 0.00	144 2.36		6.5 0.18			0.7			138[e]	15	114	0	15		
7/1 1000	371	75	7.8	91	246	7.7[a]	 2.20[c]		10 0.44		0.0 0.00	144 2.36		4.8 0.14			0.8			136[e]	17	110	0	4		
8/13 1215	278	77	7.5	99	252	7.9[a]	 2.28[c]		10 0.44		0.0 0.00	151 2.47		4.8 0.14			1.0			140[e]	16	114	0	7		
9/3 0945	266	76	7.7	91	269	7.7[a]	25 1.25	13 1.09	11 0.48	2.1 0.05	0.0 0.00	154 2.52	7.0 0.15	7.2 0.20	0.7 0.01	0.1 0.01	0.8	1.3	Fe 0.01 PO4 0.15 Al 0.12[d]	144[f]	17	117	0	5		
10/14 1300	30	65	8.2	87	281	7.7[a]	 2.52[c]		12 0.52		0.0 0.00	164 2.69		11 0.31			1.0			156[e]	17	126	0	3		
11/4 1300	1.6	58	9.3	90	292	7.7[a]	 2.56[c]		13 0.57		0.0 0.00	166 2.72		6.2 0.17			1.0			162[e]	18	128	0	5		
12/3 1045	1.9	47	10.5	89	292	7.9[a]	 2.68[c]		13 0.57		0.0 0.00	167 2.74		6.5 0.18			0.9			162[e]	18	134	0	3		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

[illegible]

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen		Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$		Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
			ppm	%Sat			Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents			Total ppm	N.C. ppm			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14	[illegible] [d]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

CACHE SLOUGH BELOW LINDSEY SLOUGH (STA. 110a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[g]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Tidal																									USBR
2/9 1120					182				13					14						128	31					
4/13 1250		64			155				6.4					4.3						100	18					
7/13 1200		75			190				12					18						112	27					
10/12 1415		67			188				12					11							27					

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

CALAVERAS RIVER AT JENNY LIND (STA. 16a)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
[illegible]																										[illegible]
1/14 [illegible]	[illegible]	[illegible]	[illegible]	99	[illegible]	[illegible]	[illegible] / 1.88[c]		6.9 / 0.30		0.0 / 0.00	88 / 1.44		10 / 0.28			[illegible]			135[e]	14	94	[illegible]	[illegible]	Median 23	
[illegible]	2,4[illegible]	44	[illegible]	[illegible]	[illegible]	7.4	[illegible] / 1.38		4.6 / 0.20		[illegible] / 0.00	63 / 1.03		5.2 / 0.15			0.1			96[e]	13	[illegible]	17	[illegible]	Maximum [illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.4	[illegible]		4.6 / [illegible]		[illegible] / 0.00	74 / 1.21		[illegible] / 0.17			[illegible]			[illegible]	13	[illegible]	[illegible]	[illegible]	Minimum [illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible] / 0.00	44 / 0.72		[illegible] / 0.23			0.1			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.4 / [illegible]	[illegible] / 0.00	[illegible] / 1.93	12 / 0.25	[illegible] / 0.17	[illegible]	[illegible]	[illegible]	[illegible]	As [illegible] PO_4 [illegible][a]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible] / 0.17			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		7.[illegible] / [illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]				
[illegible]	[illegible]																									
[illegible]	[illegible]																									
[illegible]	[illegible]																									
[illegible]	[illegible]																									
[illegible]	[illegible]																									

Mineral constituents in parts per million / equivalents per million.

[illegible footnotes a–i]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

CALAVERAS RIVER NEAR STOCKTON (STA. 16b)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/16	Not Sampled - Dry																									
2/4	Not Sampled - Dry																									
3/10	Not Sampled - Ponded																									
4/5	Not Sampled - Dry																									
5/6	Not Sampled - Dry																									
6/10 1120	0.2	73	7.2	83	234	7.4	26 1.30	8.8 0.72	7.9 0.34	2.6 0.07	0.0 0.00	119 1.95	13 0.27	8.2 0.23	0.7 0.01	0.1 0.01	0.0	11		137[f]	14	101	3			
7/3	Not Sampled - Dry																									
8/6	Not Sampled - Ponded																									
9/3	Not Sampled - Dry																									
10/7	Not Sampled - Dry																									
11/12	Not Bampled - Dry																									
12/1	Not Sampled - Dry																									

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

CHOWCHILLA RIVER AT BUCHANAN DAM SITE (STA. 114)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
							Mineral constituents in parts per million / equivalents per million																			
1959																										[illegible]
1/15 1110	22	56	[illegible]	104	288	7.2[a]	[illegible] / 1.[illegible]	4.0 / [illegible]	26 / 1.13	2.3 / 0.06	0 / 0.00	[illegible] / 1.[illegible]	5.8 / 0.12	44 / 1.24	0.4 / 0.01	0.1 / 0.01	0.0	27		177[f]	41	79	[illegible]		[illegible]	
2/3 1730	12	55	11.1	105	329	7.8[b]	28 / 1.40	5.5 / 0.45	[illegible] / 1.39	2.4 / 0.06	0 / 0.00	[illegible] / 1.62	5.4 / 0.11	51 / 1.44	0.0 / 0.00	0.1 / 0.01	0.1	22		[illegible][f]	[illegible]	[illegible]	[illegible]		[illegible]	
3/1[illegible] 09[illegible]	38	51	11.4	[illegible]	68.[illegible]	7.1[a]	6.4 / 0.32	1.5 / 0.14	[illegible] / 0.23	[illegible]	[illegible]	27 / 0.44	1.8 / 0.08	6.5 / 0.18	0.4 / 0.01	0.1 / [illegible]	0.[illegible]	12		[illegible]	[illegible]	22	[illegible]		[illegible]	
4/7 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1[a]	[illegible]	[illegible]	[illegible]	[illegible]	0 / 0.00	[illegible]	1.9 / 0.04	[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	19	[illegible]	9.1	101	227	7.1[a]	20 / 1.00	[illegible] / [illegible]	20 / 0.87	[illegible]	0 / 0.00	84 / 1.38	1.8 / [illegible]	28 / [illegible]	[illegible]	0.0 / 0.00	[illegible]	28	[illegible]	[illegible]	[illegible]	64	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible].9[a]	[illegible] / [illegible].00		35 / [illegible]		[illegible]	104 / 1.[illegible]		64 / 1.80			[illegible].0			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	Not sampled - Dry																									
[illegible]	Not sampled - Dry																									
[illegible]	Not sampled - Dry																									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.[illegible][a]	[illegible]		81 / [illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible][a]	[illegible]		[illegible] / [illegible]		[illegible]	111 / [illegible]		[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible][a]	[illegible] / [illegible]		68 / 2.9[illegible]		[illegible]	[illegible] / 1.74		[illegible] / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]			

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

CLEAR CREEK NEAR IGO (STA. 12d)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/6 0900	498	52	10.7	97	141	7.1[b]	12 0.60	3.4 0.28	10 0.44	0.5 0.01	0.0 0.00	28 0.46	17 0.35	17 0.48	1.7 0.03	0.0 0.00	0.1	15		91[f]	33	44	21			
2/10 0900	297	42			97.8	7.4[b]	9.2 0.46	3.2 0.26	5.4 0.23	0.3 0.01	0.0 0.00	34 0.56	11 0.23	7.5 0.21	0.2 0.00	0.0 0.00	0.0	17		71[f]	24	36	8			
3/11 1540	520	51	11.5	102	70.0	7.6[b]	6.6 0.33	2.2 0.18	3.3 0.14	0.3 0.01	0.0 0.00	28 0.46	5.8 0.12	4.4 0.12	0.0 0.00	0.0 0.00	0.0	18		55[f]	21	26	3			
4/15 1530	301	57	10.3	99	75.7	7.3[a]	7.2 0.36	2.7 0.22	3.9 0.17	0.4 0.01	0.0 0.00	32 0.52	7.7 0.16	3.0 0.08	0.0 0.00	0.0 0.00	0.0	17		58[f]	22	29	3			
5/14 1400	169	65	9.5	100	94.3	7.6[b]	9.0 0.45	2.2 0.18	6.5 0.28	1.3 0.03	0.0 0.00	38 0.62	6.5 0.14	6.1 0.17	0.0 0.00	0.0 0.00	0.0	18	Fe 0.03 Al 0.04[d] PO_4 0.05	69[f]	30	32	1	2		
6/17 1430	67	72	8.6	98	125	7.9[b]	12 0.60	3.9 0.32	8.8 0.38	0.8 0.02	0.0 0.00	46 0.75	13 0.27	8.5 0.24	0.1 0.00	0.1 0.01	0.0	23		93[f]	29	46	8			
7/10 1020	40	75	7.9	92	150	7.8[b]	15 0.75	2.1 0.17	11 0.48	0.9 0.02	0.0 0.00	53 0.87	8.0 0.17	14 0.39	0.3 0.00	0.0 0.00	0.0	15		92[f]	34	46	3			
8/11 1300	19	77	8.5	101	203	7.9[a]	1.28[c]		17 0.74		0.0 0.00	68 1.11		24 0.68			0.0			130[e]	37	64	8	10		
9/1 1430	20	73	9.2	106	215	7.9[a]	19 0.95	4.3 0.35	18 0.78	1.3 0.03	0.0 0.00	70 1.15	9.0 0.19	26 0.73	0.0 0.00	0.0 0.00	0.0	12	Fe 0.01 Al 0.04[d] PO_4 0.00	124[f]	37	65	8	10		
10/14 1425	37	63	9.8	101	192	7.6[b]	1.26[c]		15 0.65		0.0 0.00	65 1.07		21 0.59			0.0			123[e]	34	63	10	1		
11/11 1410	42	48	11.7	101	191	7.7[a]	18 0.90	4.1 0.34	15 0.65		0.0 0.00	65 1.07		20 0.56			0.0			123[e]	34	62	9	3		
12/10 1505	41	40	13.3	104	195	7.6[a]	1.28[c]		15 0.65		0.0 0.00	68 1.11		21 0.59			0.0			125[e]	34	64	8	4		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

Date and time sampled P S T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
[illegible]																										[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible] .17			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]		[illegible]				
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	1.44		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

TABLE B-4
ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

COLUSA TROUGH NEAR COLUSA (STA. 87)

Mineral constituents in parts per million / equivalents per million (shown as ppm / epm)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/12 1010	1,420	54	8.4	78	573	7.8[b]	26 / 1.30	18 / 1.50	67 / 2.91	3.5 / 0.09	0.0 / 0.00	168 / 2.75	85 / 1.77	39 / 1.10	5.8 / 0.09	0.3 / 0.02	0.2	15		343[f]	50	140	2		Median 126.	
2/9 0900	148	46	9.4	79	1,200	8.1[b]	54 / 2.69	43 / 3.55	145 / 6.31	1.8 / 0.05	0.0 / 0.00	327 / 5.36	226 / 4.71	93 / 2.62	0.7 / 0.01	0.5 / 0.03	0.3	16		741[f]	50	312	44		Maximum 2,400.	
3/9 1015	222	56			1,120	8.0[b]	52 / 2.59	41 / 3.41	138 / 6.00	1.8 / 0.05	0.0 / 0.00	326 / 5.34	200 / 4.16	92 / 2.59	1.3 / 0.02	0.4 / 0.02	0.2	13		701[f]	50	300	33		Minimum 5.	
4/6 0825	403	63	8.0	83	408	7.7[b]	25 / 1.25	17 / 1.39	35 / 1.52	2.1 / 0.05	0.0 / 0.00	163 / 2.67	48 / 1.00	22 / 0.62	2.2 / 0.04	0.2 / 0.01	0.2	22		254[f]	36	132	0			
5/4 0815	1,200	62	8.4	80	359	7.4[a]	19 / 0.95	14 / 1.13	36 / 1.57	1.6 / 0.04	0.0 / 0.00	142 / 2.33	44 / 0.92	17 / 0.48	0.5 / 0.01	0.2 / 0.01	0.3	15	Fe 0.06 Zn 0.03[d] PO_4 0.30 Al 0.08	218[f]	43	104	0	9		
6/1 1250	703	74	7.0	81	427	7.6[a]	22 / 1.10	16 / 1.32	48 / 2.09	1.5 / 0.04	0.0 / 0.00	168 / 2.75	57 / 1.19	21 / 0.59	1.4 / 0.02	0.2 / 0.01	0.2	19		269[f]	46	121	0			
7/6 0810	617	73	6.8	78	392	7.4[a]	24 / 1.20	16 / 1.32	39 / 1.70	1.8 / 0.05	0.0 / 0.00	179 / 2.93	42 / 0.87	16 / 0.45	0.1 / 0.00	0.2 / 0.01	0.2	30		257[f]	40	126	0			
8/10 1430	997	79	6.9	84	378	7.4[a]	22 / 1.10	17 / 1.38	36 / 1.57	2.1 / 0.05	0.0 / 0.00	180 / 2.95	30 / 0.62	14 / 0.39	0.4 / 0.01	0.2 / 0.01	0.2	20		231[f]	38	124	0			
9/7 1330	1,340	73	7.2	83	379	7.4[a]	24 / 1.20	14 / 1.16	36 / 1.57	1.9 / 0.05	0.0 / 0.00	180 / 2.95	21 / 0.44	22 / 0.62	0.0 / 0.00	0.2 / 0.01	0.1	21	PO_4 0.20 Al 0.06[d] Zn 0.02	229[f]	39	118	0	40		
10/5 1030	294	61	8.2	82	408	7.9[a]	26 / 1.30	20 / 1.62	38 / 1.65	3.0 / 0.08	0.0 / 0.00	174 / 2.85	60 / 1.25	19 / 0.54	1.2 / 0.02	0.1 / 0.01	0.1	30		283[f]	35	146	3			
11/13 1230	361	56	8.9	85	506	7.8[a]	2.86[c]		60 / 2.61		0.0 / 0.00	200 / 3.28		28 / 0.79			0.2			301[e]	48	143	60			
12/3 0830	425	49	10.0	87	474	7.7[a]	2.64[c]		57 / 2.48		0.0 / 0.00	186 / 3.05		26 / 0.73			0.1			282[e]	48	132	0	15		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS),; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

[illegible] VALLEY REGION (NO. 5)

[illegible]ONTRA COSTA CANAL AT 1st PUMP LIFT ([illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
1959	Tidal																									[illegible]
[illegible]		[illegible]			714	[illegible]	[illegible]	14	78	[illegible]	[illegible]	77	125	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		64			742	[illegible]	44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	48					
[illegible]					714	[illegible]	[illegible]	[illegible]	77	[illegible]	15	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8.7		[illegible]			[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]			[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]			[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

COSUMNES RIVER AT McCONNELL (STA. 94a)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm [f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml [h]	Analyzed by [i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/16 1430	184	50	11.0	97	101	7.5[b]	9.5 / 0.47	3.9 / 0.32	4.1 / 0.18	0.9 / 0.02	0.0 / 0.00	42 / 0.69	7.3 / 0.15	4.4 / 0.12	1.7 / 0.03	0.0 / 0.00	0.0	16		69	18	40	6		Median 23.	
2/4 1200	108	47	11.3	96	120	7.7[b]	10 / 0.50	5.6 / 0.46	4.3 / 0.19	0.8 / 0.02	0.0 / 0.00	58 / 0.95	3.5 / 0.07	5.6 / 0.16	0.1 / 0.00	0.0 / 0.00	0.1	19		78	16	48	0		Maximum 230.	
3/10 1400	402	55	10.5	98	71.7	7.3[a]	7.2 / 0.36	2.4 / 0.20	4.3 / 0.19	1.0 / 0.03	0.0 / 0.00	38 / 0.62	3.8 / 0.08	2.8 / 0.08	0.8 / 0.01	0.0 / 0.00	0.0	17		58	24	28	0		Minimum 0.23	
4/5 1530	432	66	9.0	96	56.9	7.2[a]	5.6 / 0.28	1.9 / 0.16	2.6 / 0.11	0.6 / 0.02	0.0 / 0.00	27 / 0.44	4.8 / 0.10	1.0 / 0.03	0.0 / 0.00	0.0 / 0.00	0.0	17		46	19	22	0			
5/6 1730	177	69	9.1	100	70.1	7.4[a]	6.4 / 0.32	2.9 / 0.24	2.9 / 0.13	0.7 / 0.02	0.0 / 0.00	34 / 0.56	5.8 / 0.12	1.0 / 0.03	0.0 / 0.00	0.0 / 0.00	0.1	18	Fe 0.07 PO_4 0.00 [d] Al 0.09	55	18	26	0	0		
6/	Dry																									
7/3	Dry																									
8/6	Dry																									
9/3	Dry																									
10/5	Dry																									
11/2	Dry																									
12/1	Dry																									

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

COSUMNES RIVER AT MICHIGAN BAR (STA. 94)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										
7/14 [illegible]	[illegible]	[illegible]	[illegible]	106	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	14 / 0.56		[illegible]			[illegible]			[illegible]	17	[illegible]	[illegible]	1	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible] / .11			[illegible]			91	16	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		1.5 / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible] / 0.04			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

COTTONWOOD CREEK NEAR COTTONWOOD (STA. 12b)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen		Specific conductance (micromhos at 25°C)	pH[a]	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$		Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
			ppm	%Sat			Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents			Total ppm	N.C. ppm			
1959																										USGS
1/5 1345	382	43	10.1	97	246	7.1	2.00[c]		8.5 / 0.37		0.0 / 0.00	107 / 1.75		18 / 0.51			0.0			144[e]	16	100	12	1	Median 22	
2/3 1410	299	44	11.8	96	228	7.3	1.92[c]		8.8 / 0.38		0.0 / 0.00	110 / 1.80		8.0 / 0.23			0.1			134[e]	17	96	6	2	Maximum 2,400	
3/13 0850	831	52	10.2	93	203	7.5	1.88[c]		6.5 / 0.28		0.0 / 0.00	112 / 1.84		6.5 / 0.17			0.0			119[e]	13	94	2	10	Minimum 0.046	
4/10 1120	540	62	9.4	96	202	7.3	1.88[c]		6.0 / 0.26		0.0 / 0.00	104 / 1.70		6.2 / 0.17			0.0			118[e]	12	94	6	25		
5/4 1130	377	64	9.2	96	197	7.3	18 / 0.90	9.0 / 0.74	7.6 / 0.33	1.0 / 0.03	0.0 / 0.00	107 / 1.75	5.8 / 0.12	3.5 / 0.10	0.9 / 0.01	0.1 / 0.01	0.0	24	Fe 0.03 Al 0.01[d] PO_4 0.10	123[f]	16	82	0	9		
6/2 0945	186	71	8.9	100	205	7.3	1.80[c]		9.4 / 0.41		0.0 / 0.00	113 / 1.85		8.0 / 0.23			0.0			120[e]	19	90	0	10		
7/14 1355	59	82	9.5	119	184	7.6	1.62[c]		8.7 / 0.38		0.0 / 0.00	108 / 1.77		4.2 / 0.12			0.0			108[e]	19	81	0	1		
8/10 1510	50	84	11.3	147	177	8.0	1.48[c]		10 / 0.44		0.0 / 0.00	102 / 1.67		3.8 / 0.11			0.0			104[e]	23	74	0	2		
9/1 1630	53	80	11.0	135	173	7.9	15 / 0.75	8.4 / 0.69	8.6 / 0.37	1.7 / 0.04	0.0 / 0.00	98 / 1.61	4.0 / 0.08	3.4 / 0.10	0.1 / 0.00	0.0 / 0.00	0.0	27	Fe 0.01 PO_4 0.00[d] Cu 0.01	116[f]	20	72	0	9		
10/12 1610	76	65	11.2	117	184	7.8	1.44[c]		13 / 0.57		0.0 / 0.00	108 / 1.77		6.0 / 0.17			0.0			108[e]	28	72	0	1		
11/3 1130	85	61	11.5	116	187	7.6	1.44[c]		12 / 0.52		0.0 / 0.00	106 / 1.74		4.0 / 0.11			0.0			110[e]	27	72	0	3		
12/1 1445	81	56	13.9	132	192	8.1	1.60[c]		9.5 / 0.41		0.0 / 0.00	104 / 1.70		7.0 / 0.20			0.1			113[e]	20	80	0	20		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY [illegible] (N[illegible])

[illegible]TTONWOOD CREEK BELOW NORTH FORK COTTONWOOD CREEK ([illegible] 11a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[e]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.7 / 0.32	11 / [illegible]	1.7 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.7	[illegible]	11 / [illegible]	[illegible]	[illegible]	[illegible]	11[illegible] / 1.8[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			

[illegible footnotes a–i]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

COTTONWOOD CREEK, SOUTH FORK ABOVE COTTONWOOD CREEK (STA. 11b)

Date and time sampled P.S.T.	Discharge in cfs Daily Mean	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/5 1410	332	40	12.8	99	308	7.3	31 / 1.55	11 / 0.89	14 / 0.61	0.8 / 0.02	0.0 / 0.00	109 / 1.79	18 / 0.37	34 / 0.96	0.0 / 0.00	0.1 / 0.01	0.2	10		173[f]	20	122	33			
2/2 1330	223	51	11.0	98	288	7.3	31 / 1.55	10 / 0.85	12 / 0.52	0.6 / 0.02	0.0 / 0.00	130 / 2.13	14 / 0.29	17 / 0.48	0.5 / 0.01	0.1 / 0.01	0.0	13		162[f]	18	120	13			
3/13 0950	270	51	10.8	97	253	7.9	29 / 1.45	10 / 0.82	9.6 / 0.42	0.5 / 0.01	1 / 0.03	125 / 2.05	15 / 0.31	10 / 0.28	0.0 / 0.00	0.0 / 0.00	0.0	13	Tot. Alk. 127	150[f]	16	113	9			
4/13 1330	167	68	9.0	98	225	7.9	27 / 1.35	7.7 / 0.63	8.4 / 0.37	1.2 / 0.03	2 / 0.07	115 / 1.95	7.9 / 0.16	9.0 / 0.25	0.0 / 0.00	0.0 / 0.00	0.1	15	Tot. Alk. 119	158[f]	18	99	1			
5/4 1200	90.6	66	9.4	100	233	7.7	23 / 1.15	9.6 / 0.79	9.0 / 0.39	1.3 / 0.03	0.0 / 0.00	116 / 1.90	12 / 0.25	10 / 0.28	0.5 / 0.01	0.2 / 0.01	0.0	13	Fe 0.02 Al 0.01[d] PO_4 0.05	136[f]	17	97	2	1		
6/2 1045	61.1	73	8.9	102	245	7.8	29 / 1.45	7.7 / 0.63	11 / 0.48	1.5 / 0.04	0.0 / 0.00	122 / 2.00	12 / 0.25	14 / 0.39	0.0 / 0.00	0.1 / 0.01	0.1	18		153[f]	18	104	4			
7/14 1500	2 (est.)	82	7.0	88	278	7.3	33 / 1.65	9.4 / 0.77	11 / 0.48	1.8 / 0.05	0.0 / 0.00	141 / 2.31	12 / 0.25	13 / 0.37	0.1 / 0.00	0.0 / 0.00	0.0	17		166[f]	16	121	5			
8/11 0800	1.5 (est.)	75	6.4	75	294	7.2	34 / 1.70	10 / 0.86	13 / 0.57	2.0 / 0.05	0.0 / 0.00	150 / 2.46	11 / 0.23	14 / 0.39	0.0 / 0.00	0.1 / 0.01	0.0	21		179[f]	18	128	5			
9/2 1015	0.5 (est.)	76	5.3	63	301	7.3	34 / 1.70	11 / 0.93	12 / 0.52	1.4 / 0.04	0.0 / 0.00	157 / 2.57	9.4 / 0.20	14 / 0.39	0.4 / 0.01	0.0 / 0.00	0.1	20	PO_4 0.00 Cu 0.01[d]	179[f]	16	132	3	2		
10/13 1030	0.5 (est.)	68	7.3	80	299	7.3	36 / 1.80	11 / 0.94	12 / 0.52	1.1 / 0.03	0.0 / 0.00	160 / 2.62	10 / 0.21	14 / 0.39	0.0 / 0.00	0.1 / 0.01	0.0	22		185[f]	16	137	6			
11/3 1200	Not Available	60	8.2	82	293	7.3	2.56[c]		12 / 0.52		0.0 / 0.00	163 / 2.67		8.9 / 0.25			0.0			200[e]	17	128	0	4		
12/2	Dry																									

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

COW CREEK NEAR MILLVILLE ([illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
[illegible]																										[illegible]
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible] / 0.[illegible]	[illegible] / 0.1[illegible]	[illegible]	[illegible] / 0.00	34 / 0.[illegible]	[illegible] / 0.1[illegible]	[illegible] / 0.10	0.[illegible] / [illegible]	[illegible] / 0.00	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]			141	[illegible]	14 / [illegible]	6.[illegible] / [illegible]	[illegible]	[illegible]	[illegible] / 0.00	64 / 1.[illegible]	[illegible] / 0.[illegible]	[illegible] / 0.20	[illegible] / 0.00	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	121	[illegible]	[illegible]	4.6 / 0.38	[illegible]	[illegible]	[illegible] / 0.00	60 / [illegible]	[illegible]	[illegible] / 0.1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.28	[illegible]	[illegible]	[illegible] / 0.00	61 / 1.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.[illegible]8	[illegible]	1.1 / [illegible]	[illegible] / 0.00	[illegible] / 1.11	[illegible]	4.[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible] / 0.00	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible] / 0.44		[illegible] / 0.00	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible] / 1.4[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]			

[illegible]

TABLE B-4
ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

DELTA CROSS CHANNEL NEAR WALNUT GROVE (STA. 98)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959	Tidal																									USGS
1/14 1350		52	10.1	91	97.0	7.1	0.74[c]		4.3 / 0.19		0. / 0.00	35 / 0.57		5.0 / 0.14			0.0			64[e]	20	37	8	30	Median 112.	
2/9 1120		48	10.5	91	159	7.3	1.16[c]		9.4 / 0.41		0.0 / 0.00	74 / 1.21		8.5 / 0.24			0.0			105[e]	26	58	0	1	Maximum 2,000.	
3/11 1000		55	9.7	91	151	7.3	1.[illegible]8[c]		7.4 / 0.32		0.0 / 0.00	70 / 1.15		7.5 / 0.21			0.0			100[e]	20	64	7	35	Minimum 6.2	
4/1 0930		56	9.6	91	146	7.3	1.10[c]		7.5 / 0.33		0.0 / 0.00	67 / 1.10		5.8 / 0.16			0.1			97[e]	23	55	0	35		
5/11 0900		70	7.5	83	191	7.3	11 / 0.55	9.8 / 0.81	14 / 0.61	1.1 / 0.03	0.0 / 0.00	83 / 1.36	13 / 0.27	12 / 0.34	1.2 / 0.02	0.1 / 0.01	0.1	17	PO_4 0.45 Al 0.21 d	120[f]	30	68	0	50		
6/8 0925		72	7.9	90	219	7.5	1.46[c]		16 / 0.70		0.0 / 0.00	94 / 1.54		14 / 0.39			0.1			145[e]	32	73	0	10		
7/1 0835		71	8.5	96	167	7.3	1.12[c]		12 / 0.52		0.0 / 0.00	71 / 1.16		9.5 / 0.27			0.1			110[e]	32	56	0	9		
8/10 0900		73	8.1	93	166	7.3	1.14[c]		13 / 0.57		0.0 / 0.00	75 / 1.23		8.0 / 0.23			0.1			110[e]	33	57	0	25		
9/7 0815		74	8.2	95	253	7.3	18 / 0.90	9.5 / 0.78	21 / 0.91	1.7 / 0.04	0.0 / 0.00	118 / 1.93	13 / 0.27	17 / 0.48	0.0 / 0.00	0.0 / 0.00	0.1	20	Fe 0.02 Zn 0.03 d PO_4 0.25 Al 0.05	158[f]	35	84	0	6		
10/5 0930		64	8.8	92	179	7.3	1.36[c]		13 / 0.57		0.0 / 0.00	91 / 1.49		8.5 / 0.24			0.0			118[e]	30	68	0	20		
11/2 0900		56	8.2	78	184	7.3	1.40[c]		12 / 0.52		0.0 / 0.00	91 / 1.49		9.5 / 0.27			0.2			122[e]	27	70	0	5		
12/7 0930		49	9.8	85	190	7.3	1.44[c]		13 / 0.57		0.0 / 0.00	92 / 1.51		16 / 0.45			0.1			126[e]	28	72	0	20		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

[illegible]ENTRAL VALLEY [illegible]GION (5)

DELTA-MENDOTA CANAL NEAR MENDOTA (STA. 92)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Not Rated																									[illegible]
[illegible]/13 11[illegible]		52	[illegible].5	77	509	7.4	[illegible] / 2.48		64 / 2.78		0.0 / 0.00	90 / 1.48		75 / 2.12			0.4			322[e]	[illegible]3	124	[illegible]	35	Median 93.	
[illegible]/2 1[illegible]00		52	10.[illegible]	91	716	7.1	[illegible] / 3.12		85 / 3.70		0.0 / 0.00	131 / 2.15		106 / 2.99			0.4			406[e]	54	156	49	[illegible]	Maximum 620	
3/9 141[illegible]		59	9.1	90	533	7.4	[illegible] / 2.42		58 / 2.52		0.0 / 0.00	104 / 1.70		71 / 2.00			0.3			302[e]	51	121	30	[illegible]	Minimum 0.36	
[illegible]/[illegible]		[illegible]	[illegible].4	89	745	7.7	[illegible] / 3.76		82 / 3.57		0.0 / 0.00	122 / 2.00		120 / 3.38			0.4			536[e]	47	1[illegible]	[illegible]	[illegible]		
[illegible]/4 1010		66	9.2	[illegible]	[illegible]	7.8	41 / 2.05	26 / 2.11	93 / 4.05	3.6 / 0.09	0.0 / 0.00	152 / 2.49	67 / 1.39	161 / 4.54	1.4 / 0.02	0.2 / 0.01	0.4	13	Al 0.25 PO4 0.30 d Zn 0.01	4[illegible]2[f]	49	208	83	[illegible]9		
[illegible]/1 144[illegible]		70	7.9	98	[illegible]19	7.5	[illegible] / 2.50		55 / 2.39		0.0 / 0.00	113 / 1.85		90 / 2.54			0.1			294[e]	49	125	32	[illegible]		
[illegible]/6 1[illegible]		[illegible]	[illegible]	100	457	7.5	[illegible] / 2.12		[illegible] / 2.19		0.0 / 0.00	97 / 1.59		70 / 1.97			0.1			260[e]	53	106	26	20		
[illegible]		74	7.3	94	1020	7.5	[illegible] / 3.78		142 / 6.18		0.0 / 0.00	88 / 1.44		245 / 6.91			0.2			[illegible]71[e]	67	1[illegible]	[illegible]	[illegible]3		
[illegible]/10 [illegible]		75	7.2	94	[illegible]29	7.5	23 / 1.15	18 / 1.45	79 / 3.44	4.6 / 0.12	0.0 / 0.00	90 / 1.48	40 / 0.83	1[illegible] / 3.[illegible]	[illegible].8 / 0.01	0.1 / 0.01	0.1	18	Fe 0.11 Zn [illegible] d Al [illegible] PO4 [illegible]	368[f]	[illegible]	1[illegible]	[illegible]	30		
[illegible]		[illegible]	[illegible].1	[illegible]9	[illegible]31	7.5	[illegible] / 3.30		87 / 3.78		0.0 / 0.00	142 / 2.33		128 / 3.61			0.1			416[e]	53	[illegible]	49	[illegible]		
11/5 [illegible]		56	9.5	90	7[illegible]1	7.6	[illegible] / 3.46		86 / 3.74		0.0 / 0.00	144 / 2.36		130 / 3.67			[illegible].4			[illegible][e]	52	173	[illegible]3	25		
[illegible]		48	[illegible].5	90	[illegible]	7.7	[illegible] / 4.30		115 / 5.00		0.0 / 0.00	150 / 2.46		168 / 4.74			0.4			528[e]	54	[illegible]	57	20		

[illegible]

e [illegible]

f Determined by addition of constituents.

[illegible]

h Annual median and range, respectively. [illegible]

i Mineral analyses made by [illegible] ... Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

DELTA-MENDOTA CANAL NEAR TRACY (STA. 9[illegible])

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/13 1125	0	53	[illegible].5	90	707	7.3[a]	3.00[c]		74 3.22		0.0 0.00	116 1.90		121 3.41			0.1			398[e]	52	150	55	1	Median 180.	
2/10 1130	865	51	11.2	100	805	7.8[a]	3.46[c]		107 4.65		0.0 0.00	134 2.20		132 3.72			0.3			453[e]	57	173	63		Maximum 7,000.	
3/12 1130	1,660	61	8.9	90	614	7.4[a]	2.69[c]		68 2.96		0.0 0.00	109 1.79		93 2.62			0.5			346[e]	52	135	46	20	Minimum 0.23	
4/2 1410	2,541	63	8.4	87	529	7.7[b]	2.68[c]		52 2.26		0.0 0.00	90 1.48		73 2.06			0.3			298[e]	46	134	60	50		
5/13 0845	1,620	70	7.0	78	337	7.3[a]	21 1.05	9.6 0.79	32 1.39	1.9 0.05	0.0 0.00	81 1.33	34 0.71	43 1.21	0.8 0.01	0.2 0.01	0.2	12	Fe 0.05 PO4 0.25 Al 0.17 d	195[f]	42	92	26	140		
6/9 1200	3,360	70	7.3	81	2[illegible]6	7.3[a]	1.64[c]		27 1.17		0.0 0.00	87 1.43		31 0.87			0.1			161[e]	42	82	11	48		
7/2 1200	3,248	75	7.1	83	43[illegible]	7.3[a]	2.07[c]		50 2.18		0.0 0.00	97 1.59		66 1.86			0.1			246[e]	51	103	23	35		
8/9 1345	3,129	79	6.8	83	[illegible]	7.3[a]	2.68[c]		120 5.22		0.0 0.00	82 1.34		208 5.87			0.1			499[g]	66	134	67	70		
9/7 1430	3,270	76	7.0	83	606	7.3[a]	24 1.20	15 1.24	75 3.26	4.6 0.12	0.0 0.00	98 1.61	34 0.71	129 3.64	0.8 0.01	0.1 0.01	0.1	18	Fe 0.07 Cu 0.02 PO4 0.15 Al 0.14 d	349[f]	56	122	42	15		
10/5 1600	1,670	66	7.6	82	405	7.[illegible][a]	2.16[c]		56 2.44		0.0 0.00	105 1.72		81 2.28			0.1			262[e]	53	108	22	35		
11/2 1410	860	60	12.3	123	813	8.1[a]	3.64[c]		94 4.09		0.0 0.00	150 2.46		142 4.00			0.4			457[e]	53	182	59	50		
12/7 1040	834	51	13.1	117	857	7.[illegible][a]	3.86[c]		107 4.65		0.0 0.00	146 2.39		160 4.51			0.2			483[e]	55	193	73	30		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT (STA. 93)

Mineral constituents in parts per million / equivalents per million (shown as ppm / epm)

Date and time sampled PSY	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/14-11					720	7.[illegible]	36 / 1.80	17 / 1.40	75 / 3.26	2.6 / [illegible]	[illegible] / 0.00	135 / 2.21	51 / 1.[illegible]	112 / 3.16	4.7 / 0.08	[illegible].1 / 0.01	[illegible].2	24	Fe [illegible]	[illegible]	[illegible]	[illegible]	49			
[illegible]					7[illegible]3	7.2	38 / [illegible]	19 / 1.57	[illegible] / 4.18	[illegible] / [illegible]	[illegible] / [illegible]	13[illegible] / 2.13	76 / [illegible]	134 / 3.78	3.5 / [illegible]	[illegible].2 / [illegible]	[illegible]	28	Fe [illegible]	462	[illegible]	173	66			
[illegible]					580	7.[illegible]	28 / 1.40	12 / 1.[illegible]	64 / 2.78	3.8 / [illegible]	0.0 / 0.00	107 / 1.75	61 / 1.27	82 / 2.31	3.7 / [illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible].22	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					545	7.[illegible]	27 / 1.3[illegible]	[illegible] / 1.15	59 / 2.57	[illegible]	[illegible]	[illegible] / 1.77	48 / 1.00	76 / 2.14	2.3 / 0.04	[illegible]	[illegible]	25	Fe [illegible]	[illegible]	[illegible]	12[illegible]	[illegible]			
[illegible]13-28					64[illegible]	7.[illegible]	[illegible]	17 / 1.36	66 / 2.87	[illegible]	[illegible] / 0.00	[illegible] / 1.[illegible]	67 / 1.39	1[illegible] / 2.82	3.6 / [illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	367	47	[illegible]	[illegible]			
[illegible]					[illegible]	7.4	[illegible] / 2.1[illegible]	[illegible]	[illegible]	[illegible] / 0.14	[illegible] / 0.00	[illegible] / 2.21	[illegible]	1[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	25	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	7.1	29 / 1.[illegible]	1[illegible] / 1.[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.56	[illegible] / 1.17	[illegible]	3.1 / [illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					32[illegible]	7.[illegible]	[illegible]	[illegible]	28 / 1.22	[illegible]	[illegible] / 0.00	77 / 1.[illegible]	23 / [illegible]	42 / 1.18	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	7.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]1 / 1.[illegible]	[illegible]	113 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	7.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	79 / 1.29	22 / [illegible]	46 / 1.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					299	7.[illegible]	18 / [illegible]	[illegible]	28 / 1.22	2.4 / [illegible]	[illegible]	[illegible]	22 / [illegible]	[illegible] / 1.27	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					29[illegible]	7.9	[illegible]	[illegible]	[illegible]	2.4 / [illegible]	[illegible]	[illegible]	[illegible]	28 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	13 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]7	7.[illegible]	19 / [illegible]	13 / [illegible]	17 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

DELTA-MENDOTA CANAL AT TRACY PUMPINT PLANT (STA. 93 continued)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
7/1-13					516	8.0	21 / 1.05	17 / 1.39	59 / 2.57	3.6 / 0.09	0.0 / 0.00	93 / 1.52	33 / 0.69	96 / 2.71	0.9 / 0.01	0.2 / 0.01	0.0	19	Fe 0.01	296	50	122	46			
7/14-24					780	7.9	22 / 1.10	18 / 1.50	102 / 4.44	4.4 / 0.11	0.0 / 0.00	73 / 1.20	42 / 0.87	188 / 5.30	1.7 / 0.03	0.2 / 0.01	0.0	18	Fe 0.02	432	62	130	70			
7/25-31					997	7.8	28 / 1.39	19 / 1.57	147 / 6.39	6.8 / 0.17	0.0 / 0.00	84 / 1.38	49 / 1.02	256 / 7.22	2.2 / 0.04	0.0 / 0.00	0.2	19	Fe 0.04	568	67	148	79			
8/1-9					1,030	7.8	23 / 1.15	23 / 1.89	147 / 6.39	6.4 / 0.16	0.0 / 0.00	86 / 1.41	39 / 0.81	258 / 7.28	1.5 / 0.02	0.2 / 0.01	0.1	20	Fe 0.00	560	67	152	81			
8/10-16					877	7.7	22 / 1.10	21 / 1.74	123 / 5.35	5.8 / 0.15	0.0 / 0.00	84 / 1.38	43 / 0.90	212 / 5.98	1.8 / 0.03	0.2 / 0.01	0.3	19		489	64	142	73			
8/17-31 9/1-8					694	7.9	19 / 0.95	16 / 1.33	94 / 4.09	4.4 / 0.11	0.0 / 0.00	88 / 1.44	35 / 0.73	151 / 4.26	0.8 / 0.01	0.0 / 0.00	0.2	21	Fe 0.02	384	63	114	42			
9/9-18					520	7.9	18 / 0.90	14 / 1.18	66 / 2.87	3.5 / 0.09	0.0 / 0.00	92 / 1.51	29 / 0.60	96 / 2.71	0.9 / 0.01	0.2 / 0.01	0.1	21	Fe 0.02	294	57	104	29			
9/19-25					1,110	8.2	49 / 2.45	33 / 2.71	136 / 5.92	6.4 / 0.16	0.0 / 0.00	188 / 3.08	93 / 1.94	204 / 5.75	2.8 / 0.05	0.0 / 0.00	0.5	25	Fe 0.00	643	53	258	104			
9/26-30					531	8.0	22 / 1.10	17 / 1.42	63 / 2.74	3.9 / 0.10	0.0 / 0.00	108 / 1.77	33 / 0.69	103 / 2.90	1.4 / 0.02	0.2 / 0.01	0.2	24	Fe 0.02	321	51	126	37			
10/1-14					667	8.0	34 / 1.70	17 / 1.42	75 / 3.26	4.7 / 0.12	0.0 / 0.00	136 / 2.23	48 / 1.00	114 / 3.21	0.8 / 0.01	0.1 / 0.01	0.2	23	Fe 0.00	384	50	156	44			
10/15-21					1,010	7.2	52 / 2.59	25 / 2.05	116 / 5.05	6.4 / 0.16	0.0 / 0.00	179 / 2.93	81 / 1.69	186 / 5.25	2.4 / 0.04	0.2 / 0.01	0.4	22	Fe 0.00	579	51	232	85			
10/22-31					770	7.2	41 / 2.05	18 / 1.51	90 / 3.92	4.8 / 0.12	0.0 / 0.00	145 / 2.38	59 / 1.23	133 / 3.75	1.3 / 0.02	0.2 / 0.01	0.2	20	Fe 0.00	438	52	178	59			

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);, San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

DUTCH SLOUGH AT FARRAR PARK BRIDGE (STA. 108b)

Date and time sampled P S T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[e]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Tidal																									[illegible]
[illegible]/14 1245		69			249															[illegible]8						
6/17 [illegible]		69			366															[illegible]6						
[illegible]		78			1,819															1,[illegible]64						
[illegible] 1[illegible]25					2,29[illegible]															[illegible]						
9/1[illegible] 113[illegible]		67			5[illegible]6															[illegible]						
[illegible]/14 133[illegible]		69			[illegible]															[illegible]						
11/[illegible] 14[illegible]		[illegible]7			[illegible]															[illegible]						

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}) reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWDSC), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

ELDER CREEK AT GERBER (STA. 95a)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total[f] dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/6 1220	142	45	11.4	94	299	7.5	20/1.00	17/1.36	15/0.65	1.4/0.04	0.0/0.00	101/1.66	23/0.48	28/0.79	7.6/0.12	0.2/0.01	0.2	11		173	21	118	35			
2/2 1350	39	49	11.7	102	350	7.4	29/1.45	19/1.57	14/0.61	0.8/0.02	10/0.33	149/2.44	16/0.33	22/0.62	0.9/0.01	0.1/0.01	0.0	10	Tot. Alk. 169	195	17	151	12			
3/13 1330	87	59	10.6	104	267	8.3	23/1.15	16/1.30	9.0/0.39	1.1/0.03	3/0.10	132/2.16	11/0.23	12/0.34	0.0/0.00	0.0/0.00	0.0	14	Tot. Alk. 138	154	14	123	10			
4/14 0730	47	57	9.2	89	274	7.7	24/1.20	16/1.32	9.3/0.40	0.6/0.02	5/0.17	138/2.26	4.8/0.10	14/0.39	0.0/0.00	0.1/0.01	0.1	14	Tot. Alk. 148	156	14	126	5			
5/12 0650	12	65	8.0	85	367	7.5	26/1.30	23/1.92	15/0.65	1.3/0.03	0.0/0.00	186/3.05	12/0.25	24/0.68	0.6/0.01	0.2/0.01	0.1	18	Fe 0.02 Al 0.08[d] PO_4 0.10	212	17	161	8	0		
6/1 1230	2.6	74	7.3	84	441	7.5	36/1.80	27/2.20	17/0.74	1.3/0.03	6/0.20	214/3.51	12/0.25	29/0.82	0.9/0.01	0.2/0.01	0.1	24	Tot. Alk. 226	258	16	200	15			
7/15	Dry																									
8/10	Dry																									
9/1	Dry																									
10/12	Dry																									
11/3	Dry																									
12/1	Dry																									

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-6

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

ELDER CREEK NEAR PASKENTA (STA. 13a)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										[illegible]
1/7 [illegible]	[illegible]	45	[illegible]	[illegible]	[illegible]	7.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	176 / 2.88	25 / 0.52	44 / 1.24	[illegible]	[illegible]	0.1	[illegible]		[illegible][f]	[illegible]	110	[illegible]			
[illegible] 1730	[illegible]	[illegible]	[illegible]	93	434	7.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	180 / 2.95	[illegible]	44 / 1.24	[illegible]	0.1 / 0.01	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			
3/1[illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4 / 0.13	117 / 1.9[illegible]	11 / [illegible]	1[illegible] / 0.34	[illegible]	[illegible]	[illegible]	[illegible]	Tot. Alk [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]			
[illegible] 1500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	111 / [illegible]	[illegible]	14 / 0.39	[illegible]	[illegible]	0.1	[illegible]	Tot. Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible] Al [illegible][d] [illegible]; Tot. Alk [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	7.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tot. Alk 1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	115	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tot. Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,[illegible]	[illegible]	[illegible] / 1.44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,[illegible]	[illegible]	6[illegible] / [illegible]	6[illegible] / [illegible]	1[illegible] / [illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Al [illegible] Mn [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]		Tot. Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			

a [illegible]

b [illegible]

c [illegible]

d [illegible] reported here as [illegible] except as shown.

e [illegible]

f [illegible]

g [illegible]

h [illegible]

i [illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

FALSE RIVER AT WEBB PUMP (STA. 112a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[g]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959	Tidal																									USBR
5/14 1150		66			203															160						
6/17 1100		69			339															216						
7/13 1035		74			1,518															892						
8/10 1035					1,412															820						
9/15 1030		68			405															268						
10/14 1240		69			294															224						
11/20 1135					330				23					26						176	30					

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

FEATHER RIVER AT NICOLAUS (STA. 20)

Date and time sampled PST	Discharge in cfs Mean daily	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents
1959																			
1/9 1135	4,803	49	11.6	101	110	7.3[a]	0.92[c]		4.6 / 0.20		0.0 / 0.00	57 / 0.93		3.5 / 0.10			0.0		
2/9 1530	4,460	44	12.5	102	114	7.3[a]	0.90[c]		4.1 / 0.18		0.0 / 0.00	58 / 0.95		2.8 / 0.08			0.1		
3/11 1445	10,620	52	11.[illegible]	100	87.0	7.4[a]	0.76[c]		3.7 / 0.16		0.0 / 0.00	46 / 0.75		2.8 / 0.08			0.0		
4/14 1[illegible]40	6,536	[illegible]	9.[illegible]	98	78.4	7.3[a]	0.70[c]		2.6 / 0.11		0.0 / 0.00	41 / 0.67		2.2 / 0.06			0.0		
5/12 1630	3,722	70	8.7	85	96.6	7.3[a]	9.6 / 0.48	3.4 / 0.28	4.3 / 0.19	0.4 / 0.01	0.0 / 0.00	49 / 0.80	2.9 / 0.06	3.5 / 0.10	0.7 / 0.01	0.1 / 0.01	0.0	15	Fe 0.04 Al 0.[illegible]4[d] PO_4 0.05
6/9 1400	1,000 (est.)	70	8.9	99	131	7.3[a]	1.14[c]		5.6 / 0.24		0.0 / 0.00	68 / 1.11		4.0 / 0.11			0.0		
7/7 0705	634	73	8.7	100	135	7.9[a]	1.16[c]		5.3 / 0.23		0.0 / 0.00	75 / 1.23		3.0 / 0.08			0.0		
8/4 0715	230	72	7.6	86	172	7.5[a]	1.50[c]		6.8 / 0.30		0.0 / 0.00	92 / 1.51		5.0 / 0.14			0.1		
9/8 0720	520	75	7.[illegible]	84	158	7.6[b]	16 / 0.80	6.3 / 0.52	6.8 / 0.30	2.3 / 0.06	0.0 / 0.00	84 / 1.38	8.[illegible] / 0.17	2.9 / 0.08	[illegible].5 / 0.01	0.0 / 0.00	0.1	[illegible]	Al [illegible].1 PO_4 [illegible][d]
10/1[illegible] [illegible]40	1,400	6[illegible]	9.[illegible]	93	131	7.4[a]	1.20[c]		5.8 / 0.[illegible]		0.[illegible] / 0.00	72 / 1.18		3.8 / 0.11			[illegible].0		
11/10 0810	1,250	51	8.1	72	132	7.3[a]	1.14[c]		6.3 / 0.27		0.0 / 0.00	77 / 1.26		3.0 / 0.08			0.0		
12/4 [illegible]	[illegible],3[illegible]	46	11.[illegible]	[illegible]	143	7.[illegible][a]	1.18[c]		6.6 / [illegible].29		[illegible] / 0.00	82 / 1.34		2.8 / [illegible]			[illegible]		

Date and time sampled PST	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959							USGS
1/9 1135	77[e]	18	46	[illegible]	20	Median 23	
2/9 1530	75[e]	16	48	0	40	Maximum 2,400	
3/11 1445	57[e]	17	38	0	30	Minimum 5	
4/14 1[illegible]40	[illegible][e]	14	[illegible]	[illegible]	[illegible]		
5/12 1630	64[f]	20	38	0	8		
6/9 1400	86[e]	17	57	[illegible]	8		
7/7 0705	89[e]	17	58	0	5		
8/4 0715	11[illegible][e]	17	75	0	20		
9/8 0720	1[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
10/1[illegible] [illegible]40	[illegible][e]	17	[illegible]	[illegible]	[illegible]		
11/10 0810	87[e]	19	57	[illegible]	4		
12/4 [illegible]	[illegible][e]	2[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

FEATHER RIVER NEAR OROVILLE (STA. 19)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/8 0925	4,000	42	13.0	103	108	7.2	0.94[c]		4.3 / 0.19		0.0 / 0.00	61 / 1.00		2.5 / 0.07			0.0			76[e]	17	47	0	1	Median 2.3	
2/10 1600	5,400	42	12.9	102	90.6	7.3	0.80[c]		4.6 / 0.20		0.0 / 0.00	49 / 0.80		2.0 / 0.06			0.0			64[e]	20	40	0	30	Maximum 230.	
3/6 1310	7,330	47	11.9	101	91.0	7.5	0.74[c]		3.5 / 0.15		0.0 / 0.00	48 / 0.79		2.5 / 0.07			0.0			64[e]	17	37	0	0	Minimum .13	
4/9 1455	5,680	52	11.1	100	72.8	7.3	0.68[c]		2.1 / 0.09		0.0 / 0.00	38 / 0.62		1.5 / 0.04			0.0			51[e]	12	34	3	20		
5/8 0700	4,360	55	10.2	96	84.7	7.0	8.0 / 0.40	3.2 / 0.26	3.1 / 0.13	0.7 / 0.02	0.0 / 0.00	46 / 0.75	1.0 / 0.02	1.0 / 0.03	0.4 / 0.01	0.1 / 0.01	0.0	15	Fe 0.04 Al 0.03[d] PO_4 0.00	56[f]	16	33	0	0		
6/10 1030	2,360	66	9.1	97	109	7.3	0.92[c]		4.6 / 0.20		0.0 / 0.00	60 / 0.98		1.5 / 0.04			0.0			77[e]	18	46	0	2		
7/17 1135	2,360	72	8.5	97	110	7.6	1.00[c]		5.7 / 0.25		0.0 / 0.00	66 / 1.08		2.5 / 0.07			0.0			77[e]	20	50	0	1		
8/13 1555	1,980	74	8.8	102	111	7.9	0.96[c]		5.6 / 0.24		0.0 / 0.00	66 / 1.08		1.0 / 0.03			0.0			78[e]	20	48	0	3		
9/10 1500	1,000	71	8.8	99	125	7.7	13 / 0.65	4.7 / 0.39	5.7 / 0.25	1.8 / 0.05	0.0 / 0.00	72 / 1.18	3.0 / 0.06	2.4 / 0.07	0.1 / 0.00	0.0 / 0.00	0.1	16	Al 0.13 PO_4 0.00[d]	82[f]	19	52	0	2		
10/15 1730	1,920	60	9.7	97	122	7.5	1.08[c]		6.6 / 0.29		0.0 / 0.00	70 / 1.15		4.0 / 0.11			0.0			86[e]	21	54	0	2		
11/13 1200	1,630	48	11.5	99	121	7.4	1.00[c]		6.1 / 0.27		0.0 / 0.00	70 / 1.15		2.0 / 0.06			0.0			85[e]	21	50	0	1		
12/10 1600	1,380	42	12.0	95	127	7.5	1.12[c]		6.5 / 0.28		0.0 / 0.00	77 / 1.26		2.2 / 0.06			0.0			89[e]	20	56	0	1		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

FEATHER RIVER BELOW SHANGHAI BEND (STA. 26e)

Date and time sampled P S T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/2 [illegible]	5,160	47	11.6	99	103	7.3[a]	12 0.60	3.9 0.32	4.4 0.19	1.0 0.03	0.0 0.00	56 0.92	5.8 0.12	3.5 0.10	0.2 0.00	0.1 0.01	0.1	14		73[f]	17	46	[illegible]		Median 62	
2/9 1345	5,070	44	12.2	99	108	7.[illegible][a]	11 0.55	4.3 0.35	3.8 0.17	0.8 0.02	0.0 0.00	60 0.98	1.9 0.04	3.8 0.11	0.1 0.00	0.0 0.00	0.0	16		72[f]	16	45	[illegible]		Maximum [illegible]	
3/11 1330	9,460	50	11.4	100	88.5	7.3[a]	9.6 0.48	3.3 0.27	3.3 0.14	0.6 0.02	0.0 0.00	47 0.77	5.8 0.12	1.2 0.03	0.1 0.00	0.0 0.00	0.0	15		62[f]	17	38	[illegible]		Minimum 2.3	
4/14 1600	6,350	60	[illegible]	100	98.8	7.[illegible][a]	8.2 0.41	6.2 0.51	2.9 0.13	0.5 0.01	0.0 0.00	48 0.79	11 0.23	2.5 0.07	0.0 0.00	0.0 0.00	0.0	11		66[f]	12	46	7			
5/12 1545	3,640	67	9.3	100	88.9	7.[illegible][a]	10 0.50	3.2 0.26	3.5 0.15	0.7 0.02	0.0 0.00	47 0.77	4.8 0.10	3.0 0.08	0.1 0.00	0.0 0.00	0.0	15	Fe 0.02 Al 0.05[d] PO_4 0.06	63[f]	16	38	[illegible]	5		
6/9 1440	945	70	9.0	100	131	7.[illegible][a]	13 0.65	6.7 0.55	5.0 0.22	1.1 0.03	0.0 0.00	68 1.11	9.6 0.20	4.2 0.12	0.0 0.00	0.1 0.01	0.0	15		88[f]	15	60	4			
7/7 1255	729	76	8.7	102	130	7.7[a]	1.16[c]		5.7 0.25		0.0 0.00	76 1.25		3.2 0.09			0.2			80[e]	18	58	[illegible]	[illegible]		
8/7 1330	364	82	7.9	99	167	7.7[a]	1.46[c]		6.9 0.30		0.0 0.00	92 1.51		4.5 0.13			[illegible]			114[e]	17	73	[illegible]	8		
9/1 1440	394	80	8.0	98	176	7.7[a]	17 0.85	7.7 0.63	7.3 0.32	1.7 0.04	0.0 0.00	92 1.51	6.6 0.14	4.4 0.12	0.2 0.00	[illegible] 0.00	0.0	21	Fe 0.03 Zn 0.02[d] Al 0.03 PO_4 0.05 Cu 0.01	111[f]	17	74	[illegible]	[illegible]		
10/14 1500	1,280	66	8.9	95	134	7.[illegible][b]	1.20[c]		6.0 0.26		0.0 0.00	76 1.25		4.8 0.14			0.1			91[e]	18	60	[illegible]	5		
11/13 0900	1,070	60	9.9	99	135	7.7[a]	1.12[c]		6.1 0.27		0.0 0.00	76 1.25		3.5 0.10			0.0			92[e]	19	56	[illegible]	6		
12/4 0800	1,380	45	11.2	94	141	7.3[a]	1.22[c]		6.3 0.27		0.0 0.00	80 1.31		2.8 0.08			0.1			95[e]	18	61	0	15		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.00}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

FRESNO RIVER NEAR DAULTON (STA. 113)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/15 1030	43	50	11.1	98	108	6.6[a]	8.8 / 0.44	1.5 / 0.12	11 / 0.48	1.3 / 0.03	0.0 / 0.00	37 / 0.61	3.8 / 0.08	13 / 0.37	0.3 / 0.00	0.1 / 0.01	0.0	20		78[f]	45	28	0		Median 62.	
2/3 1615	29	54	10.3	96	144	7.8[b]	11 / 0.55	2.3 / 0.19	14 / 0.61	1.5 / 0.04	0.0 / 0.00	50 / 0.82	3.8 / 0.08	18 / 0.51	0.0 / 0.00	0.1 / 0.01	0.0	26		102[f]	44	37	0		Maximum 2,400.	
3/10 0815	101	50	11.2	99	93.5	7.2[a]	7.2 / 0.36	2.2 / 0.18	7.9 / 0.34	1.3 / 0.03	0.0 / 0.00	38 / 0.62	1.9 / 0.04	9.0 / 0.25	0.4 / 0.01	0.0 / 0.00	0.0	22		71[f]	37	27	0		Minimum 2.3	
4/7 0740	86	60	9.4	94	82.0	7.3[a]	6.4 / 0.32	1.7 / 0.14	6.5 / 0.28	0.9 / 0.02	0.0 / 0.00	32 / 0.52	1.0 / 0.02	9.0 / 0.25	0.0 / 0.00	0.0 / 0.00	0.0	21		62[f]	37	23	0			
5/6 0840	82	58	9.7	94	78.9	7.3[a]	8.0 / 0.40	1.5 / 0.12	5.3 / 0.23	1.0 / 0.03	0.0 / 0.00	32 / 0.52	2.9 / 0.06	7.0 / 0.20	0.0 / 0.00	0.2 / 0.01	0.1	17	Fe 0.08 Al 0.11[d] PO_4 0.00	59[f]	29	26	0	7		
6/4 0805	30	70	8.2	91	101	7.5[a]	0.50[c]		9.6 / 0.42		0.0 / 0.00	36 / 0.59		13 / 0.37			0.0			69[e]	46	25	0	5		
7/8 0900	3.9	76	8.0	94	184	7.4[a]	0.86[c]		24 / 1.04		0.0 / 0.00	48 / 0.79		30 / 0.85			0.0			126[e]	55	43	4	0.8		
8/6	Not Sampled	- Dry																								
9/2	Not Sampled	- Dry																								
10/7 0900	3.0	62	9.4	96	336	7.3[a]	1.46[c]		39 / 1.70		0.0 / 0.00	64 / 1.05		70 / 1.97			0.3			231[e]	54	73	21	2		
11/10 1130	3.4	59	10.0	98	273	7.7[a]	1.14[c]		30 / 1.30		0.0 / 0.00	58 / 0.95		53 / 1.49			0.0			188[e]	53	57	9	2		
12/3 1130	6.0	54	10.3	95	252	7.5[a]	1.12[c]		38 / 1.65		0.0 / 0.00	59 / 0.97		44 / 1.24			0.1			173[e]	60	56	8	4		

Mineral constituents in parts per million / equivalents per million.

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO [illegible])

GRANT LINE CANAL AT TRACY ROAD BRIDGE (STA. [illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1969	Tidal																									[illegible]
[illegible]		[illegible]	[illegible]	84	[illegible]	7.2[a]	27 / 1.[illegible]	13 / 1.[illegible]	29 / 2.57	2.[illegible] / [illegible]	[illegible]	104 / 1.75	45 / 0.94	87 / 2.45	2.[illegible] / 0.[illegible]	0.1 / 0.01	0.1	1[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]		Median [illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	742	7.7[a]	37 / 1.8[illegible]	[illegible] / 1.[illegible]	[illegible] / [illegible].87	2.[illegible] / [illegible]07	[illegible]	127 / 2.[illegible]	68 / 1.42	121 / 3.41	1.9 / [illegible]	0.2 / [illegible]	[illegible].4	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]		Maximum [illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	7.2[a]	[illegible] / 1.[illegible]	[illegible] / 1.29	72 / 3.1[illegible]	2.[illegible] / [illegible]	[illegible]	117 / 1.92	63 / 1.31	106 / 2.99	[illegible]	[illegible]	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]		Minimum [illegible]	
4/[illegible] 11[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	8.[illegible][a]	44 / 2.[illegible]	[illegible] / 1.72	[illegible] / 4.3[illegible]	4.6 / [illegible]	[illegible]	156 / 2.56	7[illegible] / 1.46	152 / 4.29	2.7 / [illegible]	[illegible]	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	7.[illegible][a]	[illegible]4 / [illegible]	24 / 1.97	118 / 5.1[illegible]	8.[illegible] / [illegible]	[illegible]	188 / 3.08	77 / 1.6[illegible]	192 / [illegible].41	2.[illegible] / [illegible]	[illegible].3 / [illegible]	[illegible]	21	Fe [illegible] Al [illegible] PO_4 [illegible] [1]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	87	94[illegible]	8.1[a]	[illegible]	[illegible]2 / 1.81	1[illegible]9 / 4.74	5.4 / [illegible]14	[illegible] / [illegible]0	1[illegible]1 / 2.97	6[illegible] / 1.[illegible]	17[illegible] / 4.79	[illegible].3 / [illegible]	[illegible] / 0.[illegible]	[illegible]	[illegible]4		[illegible]22[f]	[illegible]	[illegible]	[illegible]			
7/[illegible]		[illegible]	7.[illegible]	[illegible]	[illegible]	8.4[b]	[illegible] / 4.7[illegible][g]		124 / [illegible]		4 / [illegible]13	179 / 2.[illegible]		1[illegible]7 / [illegible]			[illegible].3		Tot. Alk [illegible]	[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	92	[illegible]	8.[illegible][b]	37 / 1.8[illegible]	[illegible] / 1.65	1[illegible] / 4.35	[illegible].4 / [illegible]16	12 / 0.4[illegible]	[illegible] / 1.97	65 / 1.35	1[illegible] / 4.[illegible]	1.1 / 0.02	[illegible]	[illegible].2	[illegible]	Tot. Alk [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]			
[illegible] 0.[illegible]		[illegible]	[illegible]	[illegible]	[illegible].13[illegible]	7.8[a]	[illegible]4 / [illegible]19	27 / 2.25	[illegible]9 / [illegible]	[illegible] / 0.17	[illegible] / 0.[illegible]	[illegible] / 3.36	[illegible] / 1.44	2[illegible] / [illegible]	[illegible]2 / 0.0[illegible]	[illegible]	[illegible].3	[illegible]	PO_4 [illegible] Fe [illegible] Al [illegible] [1]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	8.1	[illegible]	[illegible]	7.7[a]	[illegible] / 4.7[illegible][g]		127 / 5.52		[illegible]	1[illegible]7 / [illegible]21		[illegible]8 / [illegible]58			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
11/6 [illegible]		[illegible]	[illegible]	109	83[illegible]	7.[illegible][a]	[illegible] / 3.44[g]		[illegible] / 4.18		[illegible]	146 / [illegible]		149 / 4.2[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	7.[illegible][a]	[illegible] / [illegible]72[g]		[illegible] / 4.18		[illegible]	134 / 2.2[illegible]		1[illegible]2 / 5.39			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Computed from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

INDIAN CREEK NEAR CRESCENT MILLS (STA. 17d)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/	Not Sampled - Snowbound																								Median 2.2	
2/5 1415	218	44	12.1	98	142	7.2	1.16[c]		6.5 / 0.28		0.0 / 0.00	76 / 1.25		3.0 / 0.08			0.2			97[e]	19	58	0	2	Maximum 620.	
3/6 1100	856	40	11.2	86	97.3	7.2	0.78[c]		5.0 / 0.22		0.0 / 0.00	53 / 0.87		2.2 / 0.06			0.1			66[e]	22	39	0	4	Minimum <0.045	
4/9 1115	621	47	10.2	86	98.3	7.1	0.88[c]		4.1 / 0.18		0.0 / 0.00	50 / 0.82		1.8 / 0.05			0.0			67[e]	17	44	3	35		
5/7 1610	264	62	8.3	84	121	7.1	12 / 0.60	4.4 / 0.36	5.4 / 0.23	1.3 / 0.03	0.0 / 0.00	68 / 1.11	3.8 / 0.08	1.5 / 0.04	0.5 / 0.01	0.1 / 0.01	0.0	24	Fe 0.14 PO_4 0.40[d] Al 0.04	86[f]	19	48	0	10		
6/5 1300	105	74	8.8	102	144	7.2	1.36[c]		6.8 / 0.30		0.0 / 0.00	84 / 1.38		2.0 / 0.06			0.0			98[e]	18	68	0	7		
7/17 0855	15	67	6.9	75	240	6.9	2.04[c]		14 / 0.61		0.0 / 0.00	139 / 2.28		5.8 / 0.16			0.1			163[e]	23	102	0	10		
8/13 1220	11	72	7.8	89	286	7.0	2.34[c]		17 / 0.74		0.0 / 0.00	164 / 2.69		8.5 / 0.24			0.1			195[e]	24	117	0	12		
9/10 1230	5.2	68	7.7	84	293	7.3	31 / 1.55	9.8 / 0.81	18 / 0.78	3.1 / 0.08	0.0 / 0.00	171 / 2.80	8.0 / 0.17	7.2 / 0.20	0.1 / 0.00	0.1 / 0.01	0.2	27	Al 0.06 PO_4 0.15[d]	188[f]	24	118	0	9		
10/15 1530	42	60	8.6	86	183	7.3	1.66[c]		9.5 / 0.41		0.0 / 0.00	105 / 1.72		4.2 / 0.12			0.0			125[e]	20	83	0	8		
11/13 0940	56	35	10.4	74	183	7.1	1.52[c]		10 / 0.44		0.0 / 0.00	100 / 1.64		5.0 / 0.14			0.2			125[e]	22	76	0	2		
12/10 1400	62	36	11.2	93	178	7.1	1.50[c]		9.6 / 0.42		0.0 / 0.00	102 / 1.67		3.0 / 0.08			0.0			121[e]	22	75	0	6		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

INDIAN SLOUGH NEAR BRENTWOOD (STA. 107)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
								Mineral constituents in parts per million / equivalents per million																		
195[illegible]	Tidal																									USBR
[illegible]		64	[illegible]	77	1,[illegible]	7.[illegible]	[illegible] / 8.16[c]		124 / 5.39		0.0 / 0.00	335 / 5.49		164 / 4.62			2.2			6[illegible][e]	40	408	33	[illegible]		
2/10 1130		[illegible]	[illegible]	[illegible]	[illegible]	8.1	[illegible] / 7.50[c]		124 / 5.[illegible]		0.[illegible] / 0.00	324 / 5.31		140 / 3.[illegible]			2.[illegible]			[illegible][e]	[illegible]	37[illegible]	[illegible]9	[illegible]		
[illegible]/11 [illegible]		[illegible]	[illegible]	97	1,5[illegible]	[illegible]	[illegible] / 7.44[c]		181 / 7.87		[illegible]	332 / 5.44		235 / 6.[illegible]3			4.[illegible]			[illegible][e]	51	372	[illegible]	20		
4/[illegible] 16[illegible]		66	7.5	80	584	[illegible]	[illegible] / [illegible].88[c]		56 / 2.44		[illegible]	[illegible] / 1.64		[illegible] / 2.31			[illegible]			[illegible][e]	[illegible]	[illegible]44	6[illegible]	[illegible]		
[illegible]/12 1[illegible]		72	6.8	77	344	7.[illegible]	1[illegible] / 0.95	9.8 / 0.81	37 / 1.61	3.2 / 0.08	[illegible] / 0.00	96 / 1.57	40 / 0.83	38 / 1.07	0.9 / 0.01	0.2 / 0.01	[illegible]	[illegible].7	Fe [illegible].22 Cu [illegible][d] Al [illegible] PO_4 0.2	[illegible][f]	47	[illegible]	9	[illegible]		
[illegible]		74	7.[illegible]	[illegible]	4[illegible]4	7.[illegible]	[illegible] / 1.10	13 / 1.05	41 / 1.78	1.9 / 0.05	0.0 / 0.00	113 / 1.85	36 / 0.75	49 / 1.38	1.7 / 0.03	[illegible]	0.3	1[illegible]	Fe [illegible] Zn 0.02[d] Al [illegible] PO_4 [illegible]	236[f]	[illegible]	[illegible]	[illegible]	[illegible]		
7/2[illegible] [illegible]		7[illegible]	6.6	[illegible]	[illegible]1	7.[illegible]	[illegible] / 2.38[c]		[illegible] / 2.61		[illegible] / 0.00	116 / 1.90		75 / 2.12			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible] 1[illegible]		[illegible]	[illegible].3	78	1,300	7[illegible]	[illegible] / [illegible].68[c]		191 / 8.31		[illegible] / 0.00	106 / 1.74		[illegible]12 / [illegible]			[illegible].4			724[e]	[illegible]	[illegible]	9[illegible]	[illegible]		
[illegible]		80	[illegible].7	82	784	7.[illegible]	24 / 1.20	19 / 1.56	1[illegible] / 4.[illegible]	6.2 / [illegible].17	[illegible].0 / [illegible]	108 / 1.77	40 / [illegible]	17[illegible] / 4.79	[illegible].9 / 0.01	[illegible]	[illegible]	20	Fe [illegible] Al [illegible].1[illegible][d] PO_4 [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]			
[illegible]		68	7.[illegible]	80	705	7.3	[illegible]		93 / 4.0[illegible]		[illegible] / 0.00	141 / 2.31		122 / 3.44			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
11/[illegible]		[illegible]	[illegible]	[illegible]	1,010	7.7	[illegible] / 4.92[c]		13[illegible] / [illegible].87		[illegible] / 0.00	238 / 3.90		160 / 4.51			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
12/[illegible]		48	1[illegible].6	91	1,420	7.7	[illegible] / 8.10[c]		161 / 7.00		0.0 / 0.00	37[illegible] / 6.06		208 / 5.87			[illegible]			7[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc., or State of California, Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

ITALIAN SLOUGH NEAR MOUTH (STA. 106)

Mineral constituents in parts per million / equivalents per million (values given as ppm / epm)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959	Tidal																									USGS
1/13 1230		54	9.3	86	640	7.2	— / 2.64[c]		67 / 2.91		0.0 / 0.00	101 / 1.66		108 / 3.05			0.5			365[e]	52	132	40	10	Median 62.	
2/10 1240		50	8.6	76	943	7.1	— / 4.04[c]		123 / 5.35		0.0 / 0.00	112 / 1.84		168 / 4.74			1.[illegible]			538[e]	57	202	110	2	Maximum >7,000.	
3/12 1330		66	7.6	81	784	7.2	— / 2.96[c]		95 / 4.13		0.0 / 0.00	116 / 1.90		137 / 3.86			1.1			448[e]	58	148	53	50	Minimum 0.62	
4/2 1550		66	8.7	93	535	7.3	— / 2.76[c]		49 / 2.13		0.0 / 0.00	88 / 1.44		73 / 2.06			0.2			305[e]	44	138	66	60		
5/13 0700		70	7.8	87	264	7.3	18 / 0.90	7.8 / 0.64	23 / 1.00	2.5 / 0.06	0.0 / 0.00	74 / 1.21	24 / 0.50	30 / 0.85	0.5 / 0.01	0.2 / 0.01	0.2	15	Fe 0.19 Cu 0.01 Al 0.19 Zn 0.01 PO_4 0.20 [d]	157[f]	38	77	16	10		
6/9 1400		71	7.8	88	284	7.4	18 / 0.90	9.0 / 0.74	26 / 1.13	1.7 / 0.04	0.0 / 0.00	87 / 1.43	24 / 0.50	31 / 0.87	0.4 / 0.01	0.0 / 0.00	0.0	14	Fe 0.12 Al 0.20 PO_4 0.15 [d]	167[f]	40	82	11	25		
7/2 1330		76	7.2	85	393	7.3	— / 1.92[c]		43 / 1.87		0.0 / 0.00	93 / 1.52		58 / 1.64			0.1			224[e]	49	96	20	40		
8/9 1550		84	6.8	87	1,000	7.3	— / 3.00[c]		148 / 6.44		0.0 / 0.00	84 / 1.38		232 / 6.54			0.1			571[e]	68	150	81	35		
9/8 1030		80	6.7	82	545	7.3	18 / 0.90	15 / 1.22	70 / 3.04	4.6 / 0.12	0.0 / 0.00	84 / 1.38	32 / 0.67	115 / 3.24	1.1 / 0.02	0.2 / 0.01	0.1	17	Fe 0.06 Al 0.05 PO_4 0.10 [d]	314[f]	58	106	37			
10/5 1500		66	8.2	87	463	7.3	— / 2.06[c]		57 / 2.48		0.0 / 0.00	97 / 1.59		81 / 2.28			0.2			264[e]	54	103	23	40		
11/2 1315		62	9.0	92	578	7.5	— / 2.74[c]		71 / 3.09		0.0 / 0.00	124 / 2.03		97 / 2.74			0.2			330[e]	53	137	35	30		
12/7 1530		51	8.7	78	982	6.9	— / 4.56[c]		113 / 4.92		0.0 / 0.00	113 / 1.85		181 / 5.10			0.6			561[e]	52	228	135	32		

a Field pH.

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

[illegible]

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
[illegible] 1/11 [illegible]	[illegible]	[illegible]	11.[illegible]	[illegible]	[illegible]	8.0[a]	[illegible]		[illegible]		[illegible]	12 / [illegible]		4.2 / 0.12			[illegible]			[illegible]	[illegible]	[illegible]	1	1	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]		[illegible] / [illegible].7		[illegible]	69 / 1.11		[illegible] / [illegible].1[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible] / 0.15		[illegible]	1[illegible] / [illegible]		[illegible]			.1			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible].1			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.7 / [illegible]	[illegible]	[illegible]	[illegible]	1.0 / [illegible]	[illegible]	[illegible]	.1	11	[illegible]	[illegible]	[illegible]	9	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	1 / 0.[illegible]		1.5 / [illegible]			[illegible]			[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]		
[illegible]	74	[illegible]	[illegible].6	[illegible]	[illegible]	[illegible][a]	[illegible]		[illegible]		[illegible]	[illegible] / .7		[illegible] / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	.6		
[illegible]	38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		6.2 / .17			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]/2 [illegible]	27	1	[illegible]	[illegible]	1[illegible]	7.1[a]	[illegible]	2.1 / .17	[illegible]	[illegible] / 0.7	[illegible] / .1[illegible]	[illegible] / 1.[illegible]7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tot. Alk. [illegible] [illegible] .1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / .7[c]		[illegible]		[illegible]	[illegible] / 1.[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		1[illegible]		[illegible]	[illegible] / 1.[illegible]		12 / .[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	27	1	[illegible]	[illegible]	[illegible]	[illegible]	1.[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBCPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

KERN RIVER NEAR BAKERSFIELD (STA. 36)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/14 0830	439	53	9.7	89	189	7.2[a]	1.32[c]		17 / 0.74		0.0 / 0.00	78 / 1.28		10 / 0.28			0.2			122[e]	36	66	2	25	Median 2.3	
2/3 1225	364	48	12.3	106	180	7.7[b]	1.08[c]		15 / 0.65		0.0 / 0.00	84 / 1.38		7.5 / 0.21			0.2			116[e]	38	54	0	0	Maximum 23.	
3/9 1945	601	55	10.0	94	180	7.2[a]	1.12[c]		15 / 0.65		0.0 / 0.00	85 / 1.39		8.8 / 0.25			0.1			116[e]	37	56	0	4	Minimum 0.23	
4/6 1600	575	64	9.1	95	172	7.7[a]	1.06[c]		15 / 0.65		0.0 / 0.00	82 / 1.34		7.0 / 0.20			0.2			111[e]	38	53	0	0		
5/5 1315	431	64	9.7	101	175	7.6[a]	18 / 0.90	1.9 / 0.16	15 / 0.65	1.9 / 0.05	0.0 / 0.00	80 / 1.31	12 / 0.25	6.0 / 0.17	0.0 / 0.00	0.3 / 0.02	0.2	0.8	Al 0.10 PO_4 0.00 Zn 0.01[d]	95[f]	37	53	0	0		
6/2 1215	490	72	9.0	102	167	7.9[a]	1.00[c]		15 / 0.65		0.0 / 0.00	78 / 1.28		7.0 / 0.20			0.1			107[e]	39	50	0	4		
7/7 1050	1,732	62	8.7	89	162	7.8[a]	1.28[c]		15 / 0.65		0.0 / 0.00	101 / 1.66		6.0 / 0.17			0.1			104[e]	34	64	0	5		
8/5 1320	550	77	8.5	101	169	7.9[a]	1.00[c]		15 / 0.65		0.0 / 0.00	78 / 1.28		6.2 / 0.17			0.2			109[e]	39	50	0	25		
9/3 0730	231	78	8.3	100	205	7.8[a]	18 / 0.90	2.7 / 0.22	20 / 0.87	2.1 / 0.05	0.0 / 0.00	89 / 1.46	11 / 0.23	12 / 0.34	0.0 / 0.00	0.3 / 0.02	0.3	10	Fe 0.02 Cu 0.01 PO_4 0.00 Zn 0.01[d]	120[f]	43	56	0	15		
10/6 1440	145	68	10.4	113	227	7.7[a]	1.18[c]		23 / 1.00		0.0 / 0.00	84 / 1.38		14 / 0.39			0.4			146[e]	46	59	0	3		
11/11 1100	146	53	10.7	96	240	7.9[a]	1.28[c]		25 / 1.09		0.0 / 0.00	92 / 1.51		13 / 0.37			0.2			154[e]	46	64	0	3		
12/		Sample broken in transit																								

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

KERN RIVER BELOW ISABELLA DAM (STA. 36a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										528
1/19 1100	2	48	10.0	86	184	7.4	 1.26[c]		14 0.61		0.0 0.00	90 1.48		6.5 0.18			0.2			116[e]	33	63	[illegible]	20	Median .91	
2/19 1350	2	[illegible]1	10.0	89	179	7.1	 1.08[c]		14 0.61		[illegible] 0.00	85 1.39		6.5 0.18			0.2			113[e]	36	54	[illegible]	1[illegible]	Maximum 230.	
3/16 1430	114	52	10.1	91	161	7.2	 0.97[c]		13 0.57		0.0 0.00	77 1.26		5.0 0.14			0.1			102[e]	37	48	[illegible]	4	Minimum .045	
4/1 1045	3	58	9.2	89	178	7.5	 1.16[c]		16 0.70		0.0 0.00	86 1.41		6.5 0.18			0.1			113[e]	38	58	[illegible]	10		
[illegible]/6 0820	2	58	9.1	89	175	7.6	18 [illegible]	2.4 0.20	14 0.61	2.2 0.06	0.0 0.00	90 1.48	4.8 0.10	6.3 0.18	0.6 0.01	0.3 0.02	[illegible].1	4.3	Fe 0.01, PO_4 0.00 Al [illegible]	77[f]	34	55	[illegible]	[illegible]		
[illegible]	[illegible]0	61	9.2	93	1[illegible]3	7.4	 0.92[c]		13 0.57		0.0 0.00	74 1.21		6.0 0.17			[illegible].1			97[e]	38	46	[illegible]	3		
[illegible]/1 1[illegible]	1,094	68	8.3	90	148	7.2	 0.92[c]		13 [illegible].57		[illegible].0 0.00	72 1.18		6.2 0.17			[illegible].1			94[e]	38	46	[illegible]	2		
[illegible]/1 1[illegible]00	462	71	8.0	90	160	7.2	 0.94[c]		15 [illegible].65		[illegible].0 0.00	74 1.21		5.5 0.16			0.1			102[e]	[illegible]	47	[illegible]	10		
9/1 [illegible]00	95	72	7.9	90	179	7.0	17 0.85	[illegible].6 0.21	17 [illegible]	2.1 0.05	0.0 0.00	84 1.38	9.[illegible] 0.19	10 0.28	1.0 [illegible]	[illegible].3 0.02	[illegible].1	10	PO_4 [illegible].15 Al [illegible].02 Zn 0.02[d]	110[f]	[illegible]	[illegible]3	[illegible]	[illegible]		
1[illegible]/1 11[illegible]	14	66	8.3	88	193	7.3	 1.13[c]		19 0.83		[illegible].0 0.00	91 1.49		8.7 0.25			[illegible].5			122[g]	42	56	[illegible]	5		
11/2 1135	7	60	8.9	89	2[illegible]7	7.4	 1.32[c]		19 0.83		0.0 [illegible].00	106 1.74		8.0 0.23			[illegible].1			1[illegible][e]	39	66	[illegible]	8		
12/1 1125	35	52	10.0	98	213	7.3	 1.[illegible][c]		20 0.87		[illegible].0 [illegible].00	106 1.74		9.0 [illegible].25			[illegible].2			135[e]	[illegible]	65	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL) or California Department of Water Resources (DWR), as indicated

TABLE B-4
ANALYSES OF SURFACE WATER
CENTRAL VALLEY REGION (NO. 5)

KERN RIVER NEAR KERNVILLE (STA. 36b)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25° C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/19 1030	280	42	11.4	90	147	7.4	0.90[c]		13 0.57		0.0 0.00	64 1.05		7.0 0.20			0.1			102[e]	39	45	0	10	Median 9.6	
2/19 1130	440	44	11.2	91	132	7.1	0.84[c]		11 0.48		0.0 0.00	59 0.97		6.0 0.17			0.0			92[e]	36	42	0	10	Maximum 7,000.	
3/16 1130	507	50	10.2	90	112	7.5	0.68[c]		9.2 0.40		0.0 0.00	52 0.85		3.5 0.10			0.1			78[e]	37	34	0	6	Minimum 0.06	
4/1 1015	450	52	10.1	91	117	7.5	0.72[c]		10 0.44		0.0 0.00	53 0.87		4.2 0.12			0.1			81[e]	38	36	0	10		
5/6 0745	602	52	10.1	91	82.6	7.5	8.8 0.44	0.5 0.04	6.5 0.28	1.1 0.03	0.0 0.00	38 0.62	2.9 0.06	3.0 0.08	0.2 0.00	0.2 0.01	0.0	13	Fe 0.03 PO_4 0.00 Al 0.03[d]	55[f]	35	24	0	0.5		
6/3 0830	566	59	9.6	94	68.5	7.2	0.42[c]		6.0 0.26		0.0 0.00	29 0.48		3.0 0.08			0.1			48[e]	38	21	0	1		
7/1 1245	285	66	8.5	91	98.1	7.4	0.52[c]		8.6 0.37		0.0 0.00	40 0.66		4.0 0.11			0.8			68[e]	42	26	0	4		
8/3 0830	166	70	8.2	91	127	7.4	0.66[c]		13 0.57		0.0 0.00	54 0.89		6.2 0.17			0.1			88[e]	53	33	0	10		
9/1 1100	111	72	8.2	93	168	7.2	15 0.75	2.1 0.17	17 0.74	1.6 0.04	0.0 0.00	72 1.18	10 0.21	11 0.31	0.0 0.00	0.1 0.01	0.2	17	PO_4 0.00 Cu 0.01 Zn 0.03[d]	109[f]	44	46	0	15		
10/1 1100	140	61	9.4	95	169	7.7	0.90[c]		18 0.78		0.0 0.00	73 1.20		8.2 0.23			0.2			118[e]	46	45	0	1		
11/2 1030	152	53	10.0	92	180	7.4	1.00[c]		19 0.83		0.0 0.00	79 1.29		10 0.28			0.1			125[e]	45	50	0	5		
12/1 1045	132	41	11.5	102	182	7.3	1.00[c]		18 0.78		0.0 0.00	83 1.36		8.2 0.23			0.2			127[e]	44	50	0	3		

Mineral constituents in parts per million / equivalents per million.

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-6

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

KINGS RIVER BELOW NORTH FORK (STA. 33o)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/12 1130	565	49	11.8	103	51.5	7.0	0.34[c]		3.9 / 0.17		0.0 / 0.00	22 / 0.36		3.2 / 0.09			0.0			[illegible]7[e]	[illegible]	17	[illegible]	1	Median [illegible].6	
2/9 1300	573	42	12.2	96	31.7	6.7	0.25[c]		1.4 / 0.06		0.0 / 0.00	16 / 0.26		1.2 / 0.03			0.0			[illegible][e]	19	12	[illegible]	[illegible]	Maximum 7,[illegible]	
3/9 1200	1,920	53	11.3	94	33.3	6.4	0.19[c]		2.2 / 0.10		0.0 / 0.00	14 / 0.23		0.8 / 0.02			0.0			21[e]	[illegible]	10	[illegible]	[illegible]	Minimum [illegible]	
4/1 1200	1,810	56	11.4	108	32.1	7.0	0.24[c]		2.0 / 0.09		0.0 / 0.00	16 / 0.26		2.0 / 0.06			0.0			23[e]	27	12	[illegible]	2		
5/1 1100	3,976	52	10.6	96	23.0	6.7	1.6 / 0.08	1.2 / 0.10	1.2 / 0.05	0.2 / 0.01	0.0 / 0.00	8 / 0.13	3.8 / [illegible]	0.5 / 0.01	0.0 / [illegible]	0.0 / [illegible]	[illegible]	1.7	Al 0.12; Zn [illegible]; [illegible]	14[f]	21	9	2	[illegible]		
6/2 1200	2,849	60	9.4	94	22.4	6.6	0.18[c]		1.6 / 0.07		0.0 / 0.00	8 / 0.13		1.0 / 0.03			0.0			16[e]	28	9	[illegible]	1		
7/1 1200	1,603	60	10.0	100	22.2	6.6	0.15[c]		1.4 / 0.06		0.0 / 0.00	9 / 0.15		0.5 / 0.01			0.0			14[e]	29	8	1	2		
8/	Not Sampled																									
9/4 0830	134	71	12.3	138	57.4	7.1	8.0 / [illegible]	0.0 / 0.00	3.7 / 0.16	1.1 / 0.03	0.0 / 0.00	23 / 0.38	5.0 / 0.10	2.8 / [illegible]	[illegible].9 / [illegible]	0.1 / [illegible]	0.1	11	PO_4 0.00; Al [illegible]; Zn [illegible]; Cu [illegible]	[illegible][f]	27	20	1	1		
10/1 1150	256	62	15.0	153	54.3	6.9	0.38[c]		3.6 / 0.16		0.0 / 0.00	22 / 0.36		[illegible].2 / 0.15			0.0			[illegible][f]	[illegible]	19	[illegible]	2		
11/1 1130	137	56	11.5	109	65.7	6.8	[illegible][c]		4.5 / 0.20		0.0 / 0.00	28 / 0.46		4.0 / 0.11			[illegible]			47[e]	31	22	[illegible]	[illegible]		
12/1 1100	115	45	12.0	99	71.2	7.1	0.56[c]		5.7 / 0.25		0.0 / 0.00	28 / 0.46		3.8 / 0.11			[illegible]			[illegible]2[e]	[illegible]	[illegible]	[illegible]	[illegible]		

Mineral constituents in parts per million / equivalents per million.

a Field pH
b Laboratory pH
c Sum of calcium and magnesium in epm
d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}) reported here as $\frac{0.0}{0.00}$ except as shown
e Derived from conductivity vs TDS curves
f Determined by addition of analyzed constituents
g Gravimetric determination
h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service
i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

KINGS RIVER BELOW PEOPLES WEIR (STA. 34)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/13 1530	354	57	9.0	87	106	6.5	0.76[c]		6.1 / 0.27		0.0 / 0.00	48 / 0.79		4.8 / 0.14			0.1			73[e]	26	38	0	10	Median 26.	
2/3 0815	412	50	10.2	90	94.8	6.8	0.66[c]		5.2 / 0.23		0.0 / 0.00	48 / 0.79		3.5 / 0.10			0.0			65[e]	26	33	0	1	Maximum 7,000	
3/9 1600	883	58	9.4	92	58.3	7.1	0.38[c]		3.1 / 0.13		0.0 / 0.00	26 / 0.43		3.2 / 0.09			0.0			40[e]	25	19	0	1	Minimum 0.62	
4/6 1255	211	69	8.7	96	149	7.2	1.12[c]		9.2 / 0.40		0.0 / 0.00	75 / 1.23		5.0 / 0.14			0.1			102[e]	26	56	0	0		
5/5 0700	167	66	8.8	94	132	7.2	14 / 0.70	3.4 / 0.28	7.6 / 0.33	1.5 / 0.04	0.0 / 0.00	66 / 1.08	5.8 / 0.12	3.5 / 0.10	1.0 / 0.02	0.0 / 0.00	0.0	14	Fe 0.09 Al 0.09[d] PO_4 0.10	84[f]	24	49	0	0		
6/2 0650	930	62	9.8	95	41.7	7.1	0.32[c]		2.5 / 0.11		0.0 / 0.00	20 / 0.33		1.5 / 0.04			0.0			29[e]	26	16	0	5		
7/6 1415	972	68	8.7	95	39.9	7.1	0.27[c]		2.3 / 0.10		0.0 / 0.00	18 / 0.30		1.8 / 0.05			0.0			27[e]	27	13	0	4		
8/5 0925	727	58	8.5	83	39.8	7.0	0.28[c]		2.1 / 0.09		0.0 / 0.00	20 / 0.33		0.5 / 0.01			0.1			27[e]	24	14	0	6		
9/3 1030	733	69	8.4	93	38.0	7.0	5.2 / 0.26	0.2 / 0.02	2.6 / 0.11	0.9 / 0.02	0.0 / 0.00	18 / 0.30	3.0 / 0.06	1.5 / 0.04	0.2 / 0.00	0.1 / 0.01	0.0	11	Fe 0.04 Zn 0.01[d] PO_4 0.05 Cu 0.01	34[f]	27	14	0	2		
10/6 0905	59	67	8.4	91	80.8	7.1	0.60[c]		4.5 / 0.20		0.0 / 0.00	37 / 0.61		5.8 / 0.16			0.2			55[e]	25	30	0	3		
11/10 1530	57	60	9.5	95	222	7.7	1.60[c]		17 / 0.74		0.0 / 0.00	118 / 1.93		8.2 / 0.23			0.0			152[e]	31	80	0	4		
12/3 1500	62	53	9.9	90	203	7.5	1.44[c]		15 / 0.65		0.0 / 0.00	106 / 1.74		7.2 / 0.20			0.0			138[e]	31	72	0	4		

Mineral constituents in parts per million / equivalents per million

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-6

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

[illegible]

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
[illegible]																										[illegible]
[illegible] 12 [illegible]	[illegible]	[illegible]	12.[illegible]	[illegible]	[illegible]	[illegible].1	[illegible] / .17		[illegible]		[illegible]	[illegible]		1.[illegible]			[illegible]			[illegible]	[illegible]	[illegible]			[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible] / .1		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	1,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]			[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible].1	7.1	[illegible]		[illegible].1 / [illegible]		[illegible]	[illegible]		1.[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible] 1 [illegible]	[illegible]	[illegible]	1.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / .1	[illegible]	[illegible]	[illegible]	1.[illegible]	[illegible] / .1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible] 1,300	[illegible]	[illegible]	[illegible]	[illegible]	[illegible].7	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		1.[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.21		[illegible]		[illegible]	[illegible]		1.[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]/	[illegible] sampled																									
[illegible]	[illegible]	[illegible]	11.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / .2	1.7 / [illegible].7	[illegible].1	[illegible]	[illegible]	1.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible].7	[illegible]		1.[illegible] / .8		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]/1 [illegible]	[illegible]	[illegible]	10.[illegible]	112	[illegible]	[illegible]	[illegible]		1.[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]			[illegible]		
[illegible]/1 [illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		.1 / [illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

LIND[illegible]Y [illegible]LOUGH N[illegible]R RIO VISTA ([illegible]. 11[illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
Mineral constituents in parts per million / equivalents per million																										
19[illegible]	[illegible]																									USGS
1/[illegible] 1[illegible]		[illegible]	10.0	9[illegible]	[illegible]40	[illegible]	[illegible]		18 / 0.78		0. / 0.00	92 / 1.51		17 / 0.48			0.2			146[e]	33	77	2	60	Median 23.	
[illegible]		4[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		1[illegible] / 0.78		0. / 0.00	90 / 1.48		12 / 0.34			0.1			133[e]	35	74	0	12	Maximum 2,400.	
[illegible] 1[illegible]		60	[illegible]	88	[illegible]1	[illegible]	[illegible]		2[illegible] / 1.0[illegible]		0. / 0.00	112 / 1.84		20 / 0.56			0.3			177[e]	35	100	8	50	Minimum 2.3	
[illegible] 14		6[illegible]	9.6	9[illegible]	196	[illegible].3	1.[illegible]		14 / 0.61		0. / 0.00	82 / 1.34		11 / 0.31			0.1			119[e]	29	73	0	85		
[illegible]/11 1[illegible]		7[illegible]	8.[illegible]	96	199	7.3	14 / 0.70	8.3 / 0.68	15 / 0.65	2.2 / 0.06	0 / [illegible].00	87 / 1.43	17 / 0.35	12 / 0.34	0.5 / 0.01	0.1 / 0.01	0.1	18	Fe 0.22 Cu 0.03; Al 0.23 PO_4 0.25 d	130[f]	31	69	0	15		
[illegible] 11[illegible]		68	8.0	87	247	7.5	1.7[illegible]		18 / 0.78		0. / 0.00	103 / 1.69		16 / 0.45			0.1			150[e]	32	82	0	70		
[illegible] 10[illegible]		7[illegible]	8.4	95	231	7.5	1.7[illegible]		17 / 0.74		0. / 0.00	98 / 1.61		14 / 0.39			0.7			141[e]	32	78	0	25		
[illegible] 114		76	[illegible].9	92	178	7.4	1.[illegible]		14 / 0.61		0. / 0.00	78 / 1.28		10 / 0.28			0.0			108[e]	34	60	0	100		
9/[illegible] 0930		77	[illegible].0	95	221	7.4	16 / 0.80	9.2 / 0.76	17 / 0.74	2.3 / 0.06	0.[illegible] / 0.00	102 / 1.67	19 / 0.40	12 / 0.34	1.1 / 0.02	0.1 / 0.01	0.0	20	Fe 0.14 PO_4 0.20 d; Al 0.20	147[f]	31	78	0			
10/[illegible] 10[illegible]0		64	8.5	89	220	7.3	1.[illegible]		17 / 0.74		0. / 0.00	102 / 1.67		14 / 0.39			0.2			134[e]	31	81	0	40		
11/[illegible] 1010		56	9.0	85	202	7.5	1.4[illegible]		14 / 0.61		0. / 0.00	98 / 1.61		13 / 0.37			0.1			123[e]	29	74	0	30		
12/[illegible] 1100		50	9.5	84	197	7.3	1.4[illegible]		14 / 0.61		0. / 0.00	97 / 1.59		9.8 / 0.28			0.0			120[e]	30	71	0	32		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE [illegible]

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION ([illegible])

LITTLE POT[illegible] TO [illegible]LOUGH AT TERMINOUS ([illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
							Mineral constituents in parts per million / equivalents per million																			
[illegible]	Tidal																									[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible] / 1.[illegible]		[illegible] / 0.00	94 / 1.54		52 / 1.47			0.[illegible]			22[illegible][e]	[illegible]	11[illegible]	[illegible]	20	Median [illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		20 / .87		[illegible] / 0.00	78 / 1.28		[illegible]0 / 1.41			0.1			1[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		1[illegible] / 0.6[illegible]		[illegible] / 0.00	66 / 1.08		34 / 0.[illegible]			0.0			146[e]	[illegible]	[illegible]	[illegible]	[illegible]	Minimum [illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		0.[illegible] / 0.00	61 / 1.00		1[illegible] / 0.34			0.[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible].4 / 0.17	1[illegible] / 0.6[illegible]	1.2 / 0.[illegible]	[illegible] / 0.00	79 / 1.29	8.6 / 0.18	[illegible] / [illegible].0	1.[illegible] / 0.0[illegible]	[illegible].1 / [illegible]	0.1	1[illegible]	Fe [illegible] Mn [illegible]; Al [illegible].19	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible] / 1.[illegible]		[illegible] / 0.00	100 / 1.64		32 / 0.[illegible]			0.1			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		19 / .8[illegible]		[illegible] / 0.00	86 / 1.41		20 / 0.56			0.1			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		14 / 0.61		[illegible] / 0.00	73 / 1.20		[illegible] / 0.[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20 / 1.00	18 / [illegible]	[illegible] / 1.[illegible]	[illegible] / 0.04	[illegible]	111 / 1.[illegible]	[illegible]	[illegible]	0.4 / 0.01	[illegible] / 0.[illegible]	[illegible]	[illegible]	Fe [illegible] Mn [illegible]; Al [illegible] [illegible] [illegible].20	[illegible][f]	[illegible]	[illegible]	[illegible]	5		
[illegible]		[illegible]	[illegible]	[illegible]	300	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible] / [illegible].68			[illegible]			1[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		1[illegible] / .[illegible]		[illegible]	[illegible] / 1.4[illegible]		[illegible]			[illegible]			11[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c [illegible]

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{6+}) reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively, calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

McCLOUD RIVER ABOVE SHASTA LAKE (STA. 18)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/	Not Sampled																								Median 0.62	
2/	Not Sampled																									
3/2 1615	2,720	47	11.5	98	88.4	7.5	0.70[c]		3.6 / 0.16		0.0 / 0.00	47 / 0.77		2.5 / 0.07			0.0			79[e]	19	35	0	0	Maximum 230.	
4/7 0830	2,350	46	11.4	95	90.7	7.3	0.80[c]		3.1 / 0.13		0.0 / 0.00	52 / 0.85		1.2 / 0.03			0.0			81[e]	14	40	0	20	Minimum <0.045	
5/5 1245	1.790	51	11.0	98	88.5	7.3	8.0 / 0.40	3.6 / 0.30	4.0 / 0.17	0.8 / 0.02	0.0 / 0.00	49 / 0.80	1.0 / 0.02	2.5 / 0.07	0.4 / 0.01	0.1 / 0.01	0.0	29	Fe 0.03 PO_4 0.05 [d]	73[f]	19	35	0	[illegible]		
6/3 0900	1,440	55	10.8	102	108	7.3	0.88[c]		5.6 / 0.24		0.0 / 0.00	61 / 1.00		3.0 / 0.08			0.0			96[e]	21	44	0	11		
7/13 1240	1,190	57	9.9	95	91.0	7.7	8.8 / 0.44	3.6 / 0.30	4.8 / 0.21	1.5 / 0.04	0.0 / 0.00	54 / 0.89	1.0 / 0.02	1.0 / 0.03	1.0 / 0.02	0.0 / 0.00	0.0	36		85[f]	21	37	0			
8/10 1130	1,130	54	10.1	94	92.2	7.4	0.76[c]		5.7 / 0.25		0.0 / 0.00	53 / 0.87		1.0 / 0.03			0.0			82[e]	25	38	0	9		
9/9 0850	1,080	51	10.8	96	92.6	7.4	8.4 / 0.42	3.5 / 0.29	5.4 / 0.23	1.2 / 0.03	0.0 / 0.00	54 / 0.89	0.6 / 0.01	1.2 / 0.03	0.5 / 0.01	0.0 / 0.00	0.0	38	Al 0.07 PO_4 0.15 [d]	86[f]	24	36	0	7		
10/12 1400	1,070	56	10.3	94	129	7.4	1.02[c]		8.6 / 0.37		0.0 / 0.00	70 / 1.15		4.8 / 0.14			0.0			115[e]	27	51	0	13		
11/9 1220	1,030	48	11.5	96	93.2	7.5	0.72[c]		5.3 / 0.23		0.0 / 0.00	54 / 0.89		1.0 / 0.03			0.0			83[e]	24	36	0	1		
12/7 1335	998	42	11.9	98	94.7	7.5	0.76[c]		5.5 / 0.24		0.0 / 0.00	54 / 0.89		1.2 / 0.03			0.0			84[e]	24	38	9	[illegible]		

a Field pH.

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);, San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

MERCED RIVER BELOW EXCHEQUER DAM (STA. 32a)

Mineral constituents in parts per million / equivalents per million

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/15 1615	[illegible]	53	1[illegible].2	94	83.3	8.0[a]	0.68[c]		[illegible].7 / 0.12		0.0 / 0.00	34 / 0.56		3.5 / 0.10			0.0			56[e]	1[illegible]	[illegible]	6	35	Median [illegible]	
2/4 0815	[illegible]	5[illegible]	10.4	92	74.4	7.5[b]	0.73[c]		2.9 / 0.13		[illegible] / 0.00	36 / 0.59		3.5 / 0.10			0.0			49[e]	18	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
3/1 1045	77	49	10.5	91	62.8	7.1[a]	0.4[illegible]		[illegible].2 / 0.1[illegible]		0.[illegible] / 0.00	25 / 0.41		2.2 / 0.06			0.0			41[e]	17	[illegible]	[illegible]	6	Minimum [illegible]	
4/7 0945	[illegible]	51	9.8	87	70.0	7.[illegible][a]	0.60[c]		1.8 / 0.08		0.0 / 0.00	32 / 0.52		2.8 / 0.08			[illegible]			45[e]	[illegible]	[illegible]	[illegible]	[illegible]		
5/6 1330	[illegible]	[illegible]	9.4	[illegible]	63.5	7.1[a]	7.6 / 0.38	1.5 / 0.12	[illegible].2 / 0.10	0.4 / 0.01	[illegible].0 / 0.00	28 / 0.46	2.9 / 0.06	3.0 / 0.08	[illegible].0 / 0.00	0.0 / 0.00	0.0	[illegible]	Fe [illegible] PO_4 [illegible][d] Al 0.03	42[f]	2[illegible]	25	[illegible]	[illegible]		
6/4 1[illegible]0	[illegible]	56	8.4	79	37.2	6.9[a]	0.28[c]		2.2 / 0.10		0.0 / 0.00	15 / [illegible].25		2.2 / 0.06			0.0			24[e]	2[illegible]	[illegible]	[illegible]	3		
7/8 1315	[illegible]	59	9.5	94	2[illegible].0	6.8[a]	0.18[c]		1.4 / 0.06		0.0 / 0.00	11 / 0.18		1.2 / 0.03			0.2			17[e]	25	[illegible]	[illegible]	[illegible]		
8/6 [illegible]45	[illegible]	72	7.5	85	41.[illegible]	[illegible].6[a]	0.34[c]		[illegible].1 / [illegible]		[illegible] / 0.00	20 / 0.3[illegible]		[illegible] / [illegible]			[illegible].1			27[e]	[illegible]	1[illegible]	[illegible]	[illegible]		
9/1 [illegible]	[illegible]	77	7.[illegible]	84	84.[illegible]	[illegible].8[a]	11 / [illegible].55	2.1 / 0.17	3.3 / 0.14	1.[illegible] / 0.03	[illegible] / [illegible]	45 / 0.74	4.[illegible] / 0.08	3.0 / 0.08	[illegible] / [illegible]	[illegible] / 0.0[illegible]	[illegible]	14	Fe [illegible].05 Zn 0.[illegible]1[d] PO_4 0.20 Cu 0.03	60[f]	16	36	[illegible]	[illegible]		
10/[illegible] 1[illegible]20	[illegible]	68	9.[illegible]	[illegible]	105	7.3[a]	[illegible].89[c]		[illegible].9 / [illegible].13		[illegible].0 / 0.00	48 / 0.79		5.0 / 0.14			0.3			60[e]	[illegible]	44	[illegible]	3		
11/[illegible] 1[illegible]0	[illegible]	[illegible]	10.[illegible]	104	132	7.5[a]	1.14[c]		3.9 / 0.17		[illegible].0 / 0.00	68 / 1.11		4.5 / 0.13			0.0			86[e]	13	57	[illegible]	30		
12/[illegible] [illegible]	[illegible]	53	10.3	94	242	7.4[a]	1.58[c]		21 / [illegible]		0.0 / 0.00	127 / 2.08		6.0 / 0.17			[illegible]			158[e]	27	[illegible]	[illegible]	8		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

MERCED RIVER NEAR STEVINSON (STA. 32)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/12 1600	280	58	8.6	84	222	6.6	1.40[c]		19 / 0.83		0.0 / 0.00	102 / 1.67		9.0 / 0.25			0.0			143[e]	37	70	0	25	Median 23.	
2/2 1330	157	55	9.5	89	272		1.56[c]		31 / 1.35		0.0 / 0.00	123 / 2.02		18 / 0.51			0.0			175[e]	46	78	0	2	Maximum 7,000.	
3/9 1145	157	62	9.0	91	329	7.7	1.72[c]		36 / 1.57		0.0 / 0.00	140 / 2.29		30 / 0.85			0.0			212[e]	48	86	0	2	Minimum 2.3	
4/6 0845	192	65	8.6	91	247	7.6	1.32[c]		24 / 1.04		0.0 / 0.00	98 / 1.61		20 / 0.56			0.0			159[e]	44	66	0	0		
5/4 1235	223	68	9.5	104	265	7.4	19 / 0.95	8.1 / 0.67	25 / 1.09	2.3 / 0.06	0.0 / 0.00	116 / 1.90	17 / 0.35	18 / 0.51	2.7 / 0.04	0.0 / 0.00	0.0	28	Fe 0.14 Al 0.07[d] PO_4 0.30 Zn 0.01	177[f]	39	81	0	15		
6/1 1050	172	74	8.0	93	266	7.3	1.52[c]		28 / 1.22		0.0 / 0.00	122 / 2.00		18 / 0.51			0.0			171[e]	45	76	0	25		
7/6 0830	97	74	8.3	96	256	7.3	1.32[c]		34 / 1.48		14 / 0.47	89 / 1.46		19 / 0.54			0.0		Tot. Alk. 117	165[e]	53	66	0	2		
8/4 1225	96	81	8.2	102	255	7.4	1.46[c]		29 / 1.27		0.0 / 0.00	114 / 1.87		19 / 0.54			0.2			164[e]	47	73	0	35		
9/10 1400	77	78	8.4	101	385	7.4	27 / 1.35	8.4 / 0.69	43 / 1.87	2.8 / 0.07	0.0 / 0.00	162 / 2.66	11 / 0.23	38 / 1.07	2.8 / 0.05	0.1 / 0.01	0.1	35	PO_4 0.25 Al 0.01[d] Cu 0.01	248[f]	47	102	0	4		
10/8 1345	108	69	9.1	100	332	7.3	1.90[c]		34 / 1.48		0.0 / 0.00	147 / 2.41		25 / 0.70			0.0			214[e]	44	95	0	10		
11/5 1300	109	61	10.0	101	345	7.5	1.84[c]		36 / 1.57		0.0 / 0.00	149 / 2.44		23 / 0.65			0.0			222[e]	46	92	0	6		
12/10 1430	131	53	11.1	102	316	7.5	1.84[c]		34 / 1.48		0.0 / 0.00	141 / 2.31		19 / 0.54			0.0			203[e]	45	92	0	5		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

MILL CREEK NEAR LOS MOLINOS (STA. 88)

Mineral constituents in parts per million / equivalents per million

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/6 1320	4[illegible]1	45	11.5	95	109	7.3	0.80[c]		7.1 / 0.31		0.0 / 0.00	40 / 0.66		9.0 / 0.25			0.0			81[e]	28	[illegible]	7	[illegible]	Median 62	
2/2 1420	[illegible]	46	11.3	94	154	7.3	0.92[c]		12 / 0.52		0.0 / 0.00	54 / 0.89		14 / 0.39			0.4			114[e]	36	46	2	10	Maximum 2,400	
3/13 1300	2[illegible]1	53	10.9	100	133	7.7	0.92[c]		11 / 0.48		0.0 / 0.00	49 / 0.80		12 / 0.34			0.4			99[e]	34	46	[illegible]	[illegible]	Minimum [illegible] 6[illegible]	
4/10 0820	[illegible]	54	10.5	97	126	7.3	8.8 / 0.44	3.9 / 0.32	8.7 / 0.38	1.5 / 0.04	0.0 / 0.00	43 / 0.70	11 / 0.23	9.5 / 0.27	0.1 / 0.00	0.[illegible] / 0.00	0.3	33		98[f]	32	38	3			
5/11 [illegible]30	147	63	9.5	98	131	7.3	9.4 / 0.47	3.8 / 0.31	9.2 / 0.40	1.5 / 0.04	0.0 / 0.00	40 / 0.66	15 / 0.31	9.5 / 0.27	0.1 / 0.00	0.0 / 0.00	0.3	30	Fe 0.03 PO_4 [illegible].05 Al 0.10 Zn [illegible].01[d]	90[f]	33	39	6	[illegible]		
6/1 1400	[illegible]	70	8.[illegible]	96	139	7.3	0.90[c]		11 / 0.48		0.0 / 0.00	44 / 0.72		11 / 0.31			0.3			1[illegible][e]	35	4[illegible]	[illegible]	[illegible]		
7/15 1000	1[illegible]	82	11.1	140	201	7.8	1.28[c]		14 / 0.61		0.0 / 0.00	75 / 1.23		14 / 0.39			0.3			149[e]	32	64	2	2		
8/1[illegible] 1200	[illegible] (est.)	93	9.4	130	227	7.3	1.50[c]		16 / 0.70		0.0 / 0.00	91 / 1.49		16 / 0.45			0.5			168[e]	32	75	[illegible]	[illegible]		
9/1 12[illegible]	[illegible] (est.)	82	10.6	133	247	7.4	20 / 1.00	8.3 / 0.68	17 / 0.74	3.1 / 0.08	0.[illegible] / 0.00	[illegible] / 1.48	20 / 0.42	20 / 0.56	0.5 / 0.01	0.1 / 0.01	0.5	44	Al [illegible].06 Zn [illegible].01 PO_4 [illegible][d]	178[f]	30	84	[illegible]	9		
1[illegible]/12 13[illegible]	[illegible] (est.)	65	9.3	98	234	7.5	1.32[c]		20 / 0.87		0.0 / 0.00	66 / 1.08		28 / 0.79			[illegible]			174[e]	4[illegible]	66	[illegible]	[illegible]		
11/3 [illegible]	[illegible]	62	1[illegible].9	[illegible]3	209	7.4	1.20[c]		19 / 0.83		0.0 / 0.00	68 / 1.11		24 / 0.68			0.8			1[illegible][e]	41	60	4	[illegible]		
1[illegible] 1200	[illegible]	45	11.5	95	212	7.3	1.20[c]		19 / 0.83		0.[illegible] / 0.00	70 / 1.15		23 / 0.65			[illegible].7			1[illegible]7[e]	41	60	3	19		

a Field pH.
b Laboratory pH.
c Sum of calcium and magnesium in epm.
d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as 0.0/0.00 except as shown.
e Derived from conductivity vs TDS curves.
f Determined by addition of analyzed constituents.
g Gravimetric determination.
h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.
i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWDSC), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

MOKELUMNE RIVER BELOW COSUMNES RIVER (STA. 23b)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total[g] dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Tidal																									USBR
1/13 1050					147				4.6					3.6						128	14					
3/19 1200		56			60				2.3					1.8						54	17					
4/13 1125		66			77				3.0					2.8						68	17					
5/18 1135		67			95				3.0					2.1						88	14					
6/15 1140					159				9.0					18						112	25					
7/13 1130		75			216				14					21						136	28					
8/11 1050		75			183				19					11						132	45					
9/14 1110		71			213				17					17						152	35					
10/12 1315		69			115				6.7					4.3						100	25					
11/9 1145		56			110				6.9					5.7						76	27					
12/18 1140					130				4.6					5.0						88	15					

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);, San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

MOKELUMNE RIVER BELOW GEORGIANA SLOUGH (STA. 23c)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
1959	Tidal																									[illegible]
[illegible] 1325					188				7.4					7.8						[illegible]	18					
[illegible]		[illegible]			[illegible]				[illegible]					7.8						[illegible]	[illegible]					
[illegible] 1045		[illegible]			119				[illegible]					7.8						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					23						164	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		71			[illegible]				[illegible]					11						[illegible]	[illegible]					
[illegible]/14 1025		71			258				18					18						176	[illegible]					
[illegible] 1145		66			189				[illegible]					7.8						[illegible]	28					
11/[illegible] 1115		56			229				[illegible]					[illegible]						[illegible]	[illegible]					
12/14 [illegible]		47			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					

a Field pH

b Laboratory pH

c [illegible] magnesium [illegible]

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h [illegible] Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service [illegible]; [illegible] Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

MOKELUMNE RIVER NEAR LANCHA PLANA (STA. 23a)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/14 0940	67	54	11.0	102	56.3	6.8	4.8 / 0.24	2.1 / 0.17	2.0 / 0.09	0.2 / 0.01	0.0 / 0.00	16 / 0.26	9.6 / 0.20	3.0 / 0.08	0.0 / 0.00	0.0 / 0.00	0.0	8.6	Fe 0.11, Zn 0.32[d], Cu 0.05, Al 0.32, Pb 0.01	38[f]	18	20	7		Median 0.62	
2/11 1115	111	48	11.3	97	102	6.5	0.76[c]		3.6 / 0.16		0.0 / 0.00	15 / 0.25		4.0 / 0.11			0.1			81[e]	17	38	26	20	Maximum 500.	
3/10 1430	690	51	10.9	97	46.1	6.8	0.31[c]		2.2 / 0.10		0.0 / 0.00	20 / 0.33		1.4 / 0.04			0.0			37[e]	24	16	0	8	Minimum 0.06	
4/15 1410	162	55	10.5	98	46.0	6.8	0.40[c]		1.7 / 0.07		0.0 / 0.00	18 / 0.30	0.0 / 0.00	2.5 / 0.07			0.0			37[e]	15	20	5	0		
5/15 1445	662	53	10.7	98	43.1	6.6	5.6 / 0.28	0.5 / 0.04	2.8 / 0.12	1.1 / 0.03	0.0 / 0.00	20 / 0.33	3.8 / 0.08	1.5 / 0.04	0.3 / 0.00	0.1 / 0.01	0.0	9	Zn 0.01, PO_4 0.00[d], Al 0.07	35[f]	26	16	0	5		
6/5 0835	635	53	10.9	100	47.5	6.9	0.36[c]		2.5 / 0.11		0.0 / 0.00	20 / 0.33		3.5 / 0.10			0.0			38[e]	23	18	2	15		
7/3 1015	690	53	11.0	101	47.8	6.7	0.32[c]		2.4 / 0.10		0.0 / 0.00	19 / 0.31		3.0 / 0.08			0.0			38[e]	24	16	0	0		
8/12 1400	712	59	9.8	97	45.5	6.8	0.32[c]		2.5 / 0.11		0.0 / 0.00	22 / 0.36		1.5 / 0.04			0.1			36[e]	26	16	0	10		
9/1 0930	318	62	9.6	98	45.7	6.8	5.6 / 0.28	1.2 / 0.10	2.7 / 0.12	0.8 / 0.02	0.0 / 0.00	22 / 0.36	4.0 / 0.08	3.0 / 0.08	0.0 / 0.00	0.0 / 0.00	0.0	13	Fe 0.03, PO_4 0.00[d], Cu 0.01, Zn 0.03	41[f]	23	19	1	1		
10/8 0930	108	59	9.9	98	44.8	7.1	0.30[c]		2.3 / 0.10		0.0 / 0.00	18 / 0.30		3.0 / 0.08			0.0			36[e]	25	15	0	2		
11/9 1015	61	56	10.1	96	39.5	7.2	0.30[c]		2.5 / 0.11		0.0 / 0.00	16 / 0.26		3.5 / 0.10			0.0			31[e]	27	15	2	3		
12/1 1300	62	57	10.0	96	40.1	7.1	0.28[c]		2.3 / 0.10		0.0 / 0.00	15 / 0.25		2.8 / 0.08			0.0			32[e]	26	14	2	1		

Mineral constituents in parts per million / equivalents per million.

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

MOKELUMNE RIVER AT WOODBRIDGE (STA. 2[illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
[illegible]																										[illegible]
[illegible]	1[illegible]	[illegible]	[illegible]	94	[illegible]	6.4[a]	7.8 / 0.39	2.[illegible] / 0.19	3.3 / 0.14	[illegible].9 / 0.02	[illegible] / 0.00	18 / 0.30	13 / 0.27	4.5 / 0.13	2.4 / 0.04	[illegible] / 0.00	[illegible]	12	Fe [illegible]; Al 0.[illegible]; [illegible][d]	[illegible][f]	[illegible]	[illegible]	[illegible]		Median [illegible]	
2/4 [illegible]	[illegible]	[illegible]	10.4	96	52.[illegible]	[illegible].8[b]	[illegible]		2.9 / 0.13		[illegible] / 0.00	17 / [illegible]28		2.[illegible] / [illegible]			[illegible].2			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
[illegible]	692	[illegible]2	10.[illegible]	[illegible]	45.8	7.[illegible][a]	[illegible]31[c]		2.2 / 0.10		[illegible] / 0.00	20 / 0.33		4.[illegible] / 0.11			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]	Minimum [illegible]	
4/[illegible] 1[illegible]	26	[illegible]	[illegible].6	94	71.9	6.9[a]	0.64[c]		2.8 / 0.12		[illegible] / 0.00	30 / 0.49		3.[illegible] / 0.10			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible].2	77	[illegible]6.[illegible]	7.[illegible][a]	6.4 / 0.32	1.9 / 0.16	3.5 / 0.15	[illegible].8 / 0.02	[illegible] / 0.00	24 / 0.39	6.7 / 0.14	2.[illegible] / 0.[illegible]	[illegible] / 0.00	[illegible].3 / 0.02	[illegible]	12	Fe [illegible]; Zn 0.[illegible]; PO_4 [illegible]; Al [illegible][d]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	34	72	8.7	99	[illegible]5.4	7.1[a]	[illegible]42[c]		[illegible] / 0.13		[illegible] / 0.00	24 / 0.39		2.[illegible] / 0.08			[illegible]			[illegible][e]	[illegible]4	[illegible]	[illegible]	[illegible]		
7/[illegible] 1[illegible]	26	74	8.[illegible]	1[illegible]	53.6	7.1[a]	[illegible].38[c]		2.9 / 0.13		[illegible] / 0.00	23 / 0.38		2.2 / 0.0[illegible]			[illegible]			41[e]	[illegible]	[illegible]	[illegible]	[illegible]		
8/[illegible]	27	74	[illegible].2	9[illegible]	52.[illegible]	7.[illegible][a]	0.40[c]		2.7 / 0.12		[illegible].0 / 0.00	24 / 0.39		2.2 / 0.0[illegible]			[illegible]			[illegible][e]	[illegible]	20	[illegible]	[illegible]		
[illegible]	2[illegible]	72	8.4	[illegible]	54.2	7.[illegible][a]	7.2 / 0.36	1.[illegible] / 0.08	3.1 / 0.13	[illegible] / 0.[illegible]	[illegible] / 0.00	28 / 0.4[illegible]	[illegible]	2.[illegible] / 0.0[illegible]	[illegible].2 / 0.00	[illegible] / 0.0[illegible]	[illegible]	14	Fe [illegible]; Cu [illegible]; PO_4 [illegible]; [illegible][d]	[illegible][f]	22	22	[illegible]	[illegible]		
10/7 1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6[illegible].4	7.1[a]	0.48[c]		[illegible] / 0.17		[illegible] / 0.00	29 / 0.48		2.[illegible] / 0.07			[illegible]			[illegible][e]	2[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]9.1	[illegible][a]	[illegible].44[c]		3.9 / [illegible].17		[illegible]	28 / [illegible]4[illegible]		4.2 / 0.12			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]7	[illegible]9	[illegible]6.[illegible]	[illegible][a]	[illegible][c]		[illegible].4 / [illegible]		[illegible] / 0.00	24 / 0.39		3.[illegible] / 0.08			[illegible]			[illegible][e]	[illegible]	20	[illegible]	[illegible]		

Mineral constituents in parts per million / equivalents per million.

a [illegible]
b [illegible]
c [illegible]
d [illegible] reported here as 0.0/0.00 except as shown.
e [illegible]
f [illegible]
g [illegible]
h [illegible] California Department of Public Health, Division of Laboratories, or United States Public Health Service.
i [illegible] United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); [illegible] Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of [illegible] Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

OLD RIVER AT CLIFTON COURT FERRY (STA. [illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a,b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
[illegible]9	Tidal																									USGS
1/1[illegible] 114[illegible]		[illegible]	[illegible].7	81	661	7.2	2.89[c]		71 / 3.04		0.0 / 0.00	115 / 1.88		110 / 3.10			0.1			376[e]	51	144	50	20	Median 23.	
2/1[illegible] 114[illegible]		51	10.7	95	[illegible]	7.[illegible]	3.42[c]		89 / 3.87		0.0 / 0.00	129 / 2.11		125 / 3.52			[illegible]			434[e]	53	171	6[illegible]	[illegible]	Maximum >7 000	
3/12 140[illegible]		[illegible]	[illegible]	89	617	7.3	2.84[c]		68 / 2.96		0.0 / 0.00	110 / 1.80		97 / 2.74			0.2			351[e]	51	142	52	70	Minimum 0.2	
4/2 15[illegible]		62	8.3	84	489	7.1	2.64[c]		44 / 1.91		0.0 / 0.00	86 / 1.41		65 / 1.83			0.3			278[e]	42	132	61	85		
5/13 0800		70	7.5	83	478	7.2	28 / 1.40	12 / 1.02	48 / 2.09	4.2 / 0.11	0.0 / 0.00	111 / 1.82	38 / 0.79	72 / 2.03	0.9 / 0.01	0.1 / 0.01	0.2	15	Fe 0.05 Cu 0.02 Al 0.09 PO_4 0.30 [d]	273[f]	45	121	30			
6/9 1300		70	7.5	83	289	7.3	1.72[c]		27 / 1.17		0.0 / 0.00	88 / 1.44		31 / 0.87			0.0			164[e]	40	86	14	60		
7/2 125[illegible]		76	7.1	84	492	7.4	2.31[c]		56 / 2.44		0.0 / 0.00	107 / 1.75		76 / 2.14			0.1			280[e]	51	115	27	20		
8/9 144[illegible]		82	6.9	87	850	7.[illegible]	2.62[c]		121 / 5.26		0.0 / 0.00	82 / 1.34		192 / 5.41			0.1			483[e]	67	131	64	70		
9/8 1130		80	6.8	84	608	7.3	24 / 1.20	15 / 1.24	75 / 3.27	4.7 / 0.12	0.0 / 0.00	97 / 1.59	34 / 0.71	132 / 3.72	1.0 / 0.02	0.0 / 0.00	0.1	18	Fe 0.05 Zn 0.05 PO_4 0.20 Al 0.11 [d]	352[f]	56	122	42	10		
10/5 1550		66	8.1	86	429	7.3	2.00[c]		50 / 2.18		0.0 / 0.00	101 / 1.66		75 / 2.12			0.2			244[e]	52	100	17	30		
11/2 1340		57	12.2	118	811	8.1	3.72[c]		94 / 4.09		0.0 / 0.00	150 / 2.46		139 / 3.92			0.3			461[e]	52	186	63	20		
12/7 1600		50	11.9	104	859	7.7	3.56[c]		103 / 4.48		0.0 / 0.00	142 / 2.33		160 / 4.51			0.2			488[e]	56	178	62	35		

a Field pH.

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE [illegible]

ANALYSES OF SURFACE WATER

[illegible]

OLD RIVER [illegible] HOLLAND TRACT [illegible]

Date and time sampled P S T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
[illegible]	[illegible]																									[illegible]
[illegible]					[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
7 13 1220		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]					[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			44[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					

a [illegible]

b [illegible]

c [illegible]

d [illegible] Fe [illegible] Al [illegible] As [illegible] Cu [illegible] Pb [illegible] manganese (Mn) [illegible] and hexavalent chromium [illegible] reported here as [illegible] except [illegible]

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of [illegible] monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

OLD RIVER AT MANDEVILLE ISLAND (STA. 112)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Tidal																									USGS
1/12 1435		53	10.1	92	462	7.2	2.50[c]		42 1.83		0.0 0.00	75 1.23		60 1.69			0.1			266[e]	42	125	63	15	Median 230.	
2/9 1530		49	10.1	88	536	7.3	2.84[c]		56 2.44		0.0 0.00	87 1.43		72 2.03			0.1			311[e]	40	142	71	3	Maximum 7,000.	
3/12		60	8.2	82	497	7.2	2.64[c]		44 1.91		0.0 0.00	90 1.48		66 1.86			0.2			286[e]	42	132	56	30	Minimum 2.3	
4/2 0905		60	8.9	89	253	7.3	1.60[c]		23 1.00		0.0 0.00	72 1.18		27 0.76			0.1			146[e]	38	80	21	40		
5/12 1130		68	8.1	88	208	7.3	15 0.75	6.9 0.57	18 0.78	2.0 0.05	0.0 0.00	73 1.20	18 0.37	20 0.56	0.6 0.01	0.1 0.01	0.1	15	Fe 0.15 Cu 0.03 [d] Al 0.13 PO_4 0.20	132[f]	36	66	6	20		
6/9 0815		67	8.0	77	249	7.3	1.48[c]		22 0.96		0.0 0.00	91 1.49		24 0.68			0.4			144[e]	39	74	0	45		
7/2 0800		74	8.1	94	631	7.4	2.22[c]		84 3.65		0.0 0.00	91 1.49		126 3.55			0.1			365[e]	62	111	36	25		
8/9 1000		78	7.7	93	573	7.3	1.96[c]		73 3.18		0.0 0.00	79 1.29		128 3.61			0.0			334[e]	62	98	33	40		
9/11 0830		79	7.5	91	801	7.3	38 1.90	19 1.54	100 4.35	9.4 0.24	0.0 0.00	194 3.18	33 0.69	145 4.09	2.6 0.04	0.1 0.01	0.2	14	Fe 0.03 PO_4 1.5 [d]	457[f]	54	172	13			
10/6 0930		66	8.0	85	379	7.3	1.88[c]		43 1.87		0.0 0.00	101 1.66		60 1.69			0.2			219[e]	50	94	11	40		
11/6 1100		58	9.4	92	289	7.5	1.76[c]		26 1.13		0.0 0.00	101 1.66		34 0.96			0.1			167[e]	39	88	5	25		
12/11 0955		50			331	7.3	1.90[c]		32 1.39		0.0 0.00	105 1.72		39 1.10			0.1			192[e]	42	95	9	17		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

[illegible]NTRAL VALLEY REGI[illegible] (NO. [illegible])

OLD RIVER AT O[illegible]WOOD BRIDG[illegible]

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Tidal																									[illegible]
[illegible]/1[illegible] 14[illegible]0		54	[illegible]	79	830	[illegible]	[illegible]		85 / [illegible]		0.[illegible] / 0.00	11[illegible] / 1.8[illegible]		[illegible] / [illegible].61			0.[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]/10 14[illegible]		[illegible]0	9.[illegible]	81	828	[illegible].2	[illegible]		98 / 4.26		0 / 0.00	116 / 1.90		[illegible] / [illegible]			[illegible]			[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]/11 1600		60	8.9	89	694	[illegible]	[illegible]		62 / 2.70		0.[illegible] / 0.00	102 / 1.67		83 / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible] 074[illegible]		6[illegible]	8.1	82	[illegible]80	[illegible].1	[illegible]		32 / 1.39		[illegible] / 0.00	82 / 1.34		48 / 1.35			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]/12 1[illegible]		[illegible]	[illegible]	80	233	[illegible].2	16 / [illegible].80	7.5 / 0.62	20 / 0.87	[illegible] / 0.0[illegible]	[illegible] / 0.00	73 / 1.20	[illegible] / 0.46	[illegible] / 0.68	[illegible] / 0.01	[illegible] / [illegible]	[illegible]	15	Fe [illegible] [illegible] Al [illegible] [illegible] [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
6/1[illegible] [illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		25 / 1.09		0.[illegible] / 0.00	86 / 1.41		25 / 0.[illegible]			[illegible]			144[e]	41	[illegible]	[illegible]	[illegible]		
[illegible]		76	[illegible]	8[illegible]	[illegible]34	[illegible]	[illegible]		64 / 2.78		0.[illegible] / 0.00	92 / 1.[illegible]		97 / 2.74			[illegible].1			500[e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible] 1445		78	6.8	82	1,050	[illegible]	[illegible]		153 / 6.66		0.[illegible] / 0.00	82 / 1.34		250 / 7.05			0.2			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible] 0930		76	6.9	81	[illegible]54	[illegible]	18 / 0.[illegible]	16 / 1.30	70 / 3.04	4.2 / 0.11	0 / 0.00	84 / 1.38	31 / 0.6[illegible]	120 / [illegible].38	1.1 / [illegible]	0.2 / 0.[illegible]	0.1	19	Fe [illegible].06 Al [illegible].04 PO_4 0.1[illegible] [illegible]	321[f]	[illegible]	[illegible]	[illegible]			
[illegible]6 1[illegible]		6[illegible]	[illegible]	8[illegible]	[illegible]	[illegible]	[illegible]		45 / 1.[illegible]		0.[illegible] / 0.00	1[illegible]2 / 1.67		6[illegible] / 1.89			0.2			[illegible]20[e]	[illegible]	[illegible]	[illegible]	[illegible]		
11/[illegible] [illegible]		58	8.[illegible]	83	[illegible]	[illegible]	[illegible]		40 / 1.74		0.[illegible] / 0.00	108 / 1.[illegible]		55 / 1.5[illegible]			[illegible]			222[e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		49	10.4	[illegible]	[illegible]	[illegible]	[illegible]		84 / 3.65		0.[illegible] / 0.00	134 / 2.20		1[illegible] / 3.5[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

OLD RIVER NEAR TRACY (STA. [illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959	Tidal																									[illegible]
1/13 1050		56	8.3	79	669	7.2	2.94c		71 / 3.09		0 / 0.00	120 / 1.97		108 / 3.05			0.2			376e	51	147	49	15	Median 230.	
2/10 1055		50	10.5	93	763	7.7	3.48c		94 / 4.09		0 / 0.00	137 / 2.25		129 / 3.64			0.4			428e	54	174	62	0	Maximum 7,000.	
3/12 1500		62	7.0	71	676	7.3	3.08c		75 / 3.26		0 / 0.00	118 / 1.93		107 / 3.02			0.5			380e	51	154	57	60	Minimum 2.1	
4/2 1200		66	16.0	170	956	8.1	4.48c		102 / 4.44		6 / 0.20	154 / 2.52		172 / 4.85			0.4		Tot. Alk. 166	537e	50	224	58	60		
5/13 0945		70	6.9	77	965	7.9	53 / 2.64	23 / 1.92	115 / 5.00	5.4 / 0.14	0 / 0.00	184 / 3.02	81 / 1.69	176 / 4.96	5.1 / 0.08	0.2 / 0.01	0.3	13	PO_4 0.50 Al 0.16 d	563f	52	228	77	110		
6/9 1000		68	9.2	100	1,070	8.1	5.04c		122 / 5.31		0 / 0.00	194 / 3.18		199 / 5.61			0.3			601e	51	252	93	18		
7/2 1015		75	7.0	82	1,100	7.9	5.16c		130 / 5.66		2 / 0.07	193 / 3.16		212 / 5.98			0.3		Tot. Alk. 197	618e	52	258	96	20		
8/10 1245		80	6.5	80	788	7.9	3.66c		98 / 4.26		0 / 0.00	160 / 2.62		152 / 4.29			0.3			443e	54	183	52	60		
9/11 0615		79	6.7	82	1,180	7.9	67 / 3.34	32 / 2.62	134 / 5.83	7.2 / 0.18	0 / 0.00	213 / 3.49	74 / 1.54	234 / 6.60	0.0 / 0.00	0.0 / 0.00	0.3	19	PO_4 0.45 Al 0.09 d Zn 0.04	673f	49	298	123	10		
10/8 1700		68	8.9	97	1,110	7.9	5.08c		129 / 5.61		0 / 0.00	215 / 3.52		202 / 5.70			0.2			624e	52	254	78	35		
11/6 0905		55	11.1	104	828	7.9	3.88c		92 / 4.00		0 / 0.00	159 / 2.61		142 / 4.00			0.3			465e	51	194	64	20		
12/11 0850		46	10.3	86	890	7.6	4.12c		108 / 4.70		0 / 0.00	164 / 2.69		152 / 4.29			0.3			500e	53	206	72	35		

Mineral constituents in parts per million / equivalents per million.

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

PAYNES CREEK NEAR RED BLUFF (STA. 88c)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO3)	Bicarbonate (HCO3)	Sulfate (SO4)	Chloride (Cl)	Nitrate (NO3)	Fluoride (F)	Boron (B)	Silica (SiO2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as CaCO3 Total ppm	Hardness as CaCO3 N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/6 1500		48	11.[illegible]	97	104	7.2[a]	7.2 / 0.36	4.4 / 0.36	6.5 / 0.28	1.2 / 0.03	0.0 / 0.00	43 / 0.70	3.8 / 0.08	6.5 / 0.18	5.0 / 0.08	0.1 / 0.01	0.1	27		8[illegible][f]	[illegible]	[illegible]	1			
2/3 1500	34	50	11.1	98	165	7.2[a]	11 / 0.55	7.9 / 0.65	12 / 0.52	1.2 / 0.03	0.0 / 0.00	86 / 1.41	1.0 / 0.02	10 / 0.28	0.4 / 0.01	0.0 / 0.00	0.2	45		130[f]	30	60	0			
3/11 1115	32	57	11.4	110	166	7.0[b]	12 / 0.60	6.7 / 0.55	12 / 0.52	1.2 / 0.03	0.0 / 0.00	87 / 1.43	4.2 / 0.09	7.3 / 0.21	0.5 / 0.01	0.1 / 0.01	0.2	45		132[f]	31	[illegible]	[illegible]			
4/15 1200	9.7	63	10.1	104	192	7.5[a]	12 / 0.60	9.2 / 0.76	13 / 0.57	1.2 / 0.03	0.0 / 0.00	97 / 1.59	0.0 / 0.00	11 / 0.31	0.2 / 0.00	0.2 / 0.01	0.3	47		142[f]	29	68	0			
5/15 1015	2.5	64	10.0	104	221	7.8[b]	12 / 0.60	12 / 1.00	15 / 0.65	1.8 / 0.05	0.0 / 0.00	114 / 1.87	4.8 / 0.10	14 / 0.39	1.5 / 0.02	0.1 / 0.01	0.3	49	Fe 0.07 Al 0.08 d PO4 [illegible].40	167[f]	28	[illegible]	0	[illegible]		
6/16 1100	0.6	70	9.0	100	223	8.2[b]	14 / 0.70	11 / 0.92	17 / 0.74	1.6 / 0.04	0.0 / 0.00	115 / 1.88	6.0 / 0.12	14 / 0.39	0.6 / 0.01	0.1 / 0.01	0.4	53		[illegible]75[f]	31	81	[illegible]			
7/9 0940	0.2	70	7.6	83	229	8.2[b]	15 / 0.75	10 / 0.85	18 / 0.78	2.1 / 0.05	0.0 / 0.00	102 / 1.67	16 / 0.33	14 / 0.39	0.9 / 0.01	0.1 / 0.01	0.4	49		176[f]	32	80	[illegible]			
8/11 0730	0.1	63	8.6	89	229	7.3[a]	14 / 0.70	11 / 0.94	19 / 0.83	2.1 / 0.05	0.0 / 0.00	116 / 1.90	9.0 / 0.19	15 / 0.42	0.7 / 0.01	0.2 / 0.01	0.4	51		179[f]	[illegible]	82	[illegible]			
9/1 0825	1.2	64	9.1	95	239	7.3[a]	15 / 0.75	11 / 0.94	20 / 0.87	1.3 / 0.03	0.0 / 0.00	118 / 1.93	3.0 / 0.06	18 / 0.51	0.0 / 0.00	0.0 / 0.00	0.5	51	Fe 0.03 Al 0.02 d PO4 0.15	178[f]	34	82	0	10		
10/13 1000	0.9	61	9.5	90	253	7.5[b]	16 / 0.80	10 / 0.84	24 / 1.04	2.1 / 0.05	0.0 / 0.00	125 / 2.05	1.0 / 0.02	20 / 0.56	0.2 / 0.00	0.1 / 0.01	0.5	50		186[f]	38	82	[illegible]			
11/13 1420	2.5	58	9.3	91	236	7.3[a]	15 / 0.75	10 / 0.83	22 / 0.96	2.8 / 0.07	0.0 / 0.00	120 / 1.97	4.0 / 0.08	19 / 0.54	0.6 / 0.01	0.0 / 0.00	0.5	52		185[f]	[illegible]	79	[illegible]			
12/10 1030	2.5	51	9.4	84	238	7.3[a]	1.76[c]		20 / 0.87		0.0 / 0.00	122 / 2.00		18 / 0.51			0.4			184[e]	[illegible]	78	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}) reported here as 0.0 / 0.00 except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR) as indicated

TABLE B-4
ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

PIT RIVER NEAR BIEBER (STA. 17e)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total[f] dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/	Not Sampled																									
2/	Not Sampled																									
3/5 1310	530	46	9.6	80	155	7.4	13 0.65	5.0 0.44	14 0.61	2.6 0.07	0.0 0.00	80 1.31	17 0.35	3.5 0.10	0.2 0.00	0.2 0.01	0.0	27		122	35	53	0			
4/	Not Sampled																									
5/7 0900	30	56	8.0	76	295	7.7	22 1.10	9.5 0.78	28 1.22	4.6 0.12	0.0 0.00	164 2.69	13 0.27	8.0 0.23	0.7 0.01	0.2 0.01	0.3	26	Fe 0.07 PO_4 0.15[d] Al 0.26	193	38	94	0	100		
6/4 1450	11	69	7.3	80	336	7.8	23 1.15	11 0.89	37 1.61	6.6 0.17	0.0 0.00	180 2.95	27 0.56	8.0 0.23	1.3 0.02	0.2 0.01	0.2	32		235	42	102	0			
7/16 1125	10	76	9.1	107	359	8.3	28 1.40	9.7 0.80	41 1.78	6.3 0.16	16 0.53	178 2.92	13 0.27	9.0 0.25	0.8 0.01	0.2 0.01	0.0	30	Tot. Alk. 210	241	43	110	0			
8/12 1310	0.2	71	10.3	116	339	8.3	16 0.80	4.9 0.40	55 2.39	7.6 0.19	26 0.87	122 2.00	20 0.42	14 0.39	0.1 0.00	0.4 0.02	0.2	25	Tot. Alk. 175	229	63	60	0			
9/9 1445	0.2	77	14.6	174	383	8.2	14 0.70	5.6 0.46	68 2.96	8.8 0.23	53 1.77	90 1.48	15 0.31	23 0.65	0.0 0.00	0.3 0.02	0.3	10	Fe 0.05 Al 0.27[d] Zn 0.02 PO_4 0.15 Tot. Alk. 198	243	68	58	0	13		
10/14 1330	0.3	64	10.6	110	334	8.0	24 1.20	12 0.96	38 1.65	6.5 0.17	0.0 0.00	173 2.84	40 0.83	7.0 0.20	0.6 0.01	0.2 0.01	0.2	33		246	41	108	0			
11/12 1045	22	38	10.6	79	312	7.9	23 1.15	11 0.93	30 130	5.2 0.13	0.0 0.00	170 2.79	19 0.40	12 0.34	0.3 0.00	0.5 0.03	0.2	26		211	37	104	0			
12/9 1415	68	33	12.0	97	335	7.7	23 1.15	8.9 0.73	33 1.44	7.3 0.19	0.0 0.00	172 2.82	16 0.33	14 0.39	0.3 0.00	0.2 0.01	0.1	34		222	41	94	0			

a Field pH.

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

PIT RIVER NEAR CANBY (STA. 17e)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/[illegible]	Not Sampled - Snowbound																								Median [illegible]	
2/4 1730	95	[illegible]	1[illegible].6	82	262	7.7	1.58[c]		28 / 1.22		0.0 / 0.00	137 / 2.25		8.5 / 0.24			0.1			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
3/5 1405	139	48	9.8	86	218	7.8	1.34[c]		20 / 0.87		[illegible] / 0.00	113 / 1.85		8.[illegible] / 0.2[illegible]			0.1			[illegible][e]	[illegible]	67	[illegible]	[illegible]	Minimum [illegible]	
4/8 1700	92	60	9.[illegible]	[illegible]	256	7.9	1.64[c]		23 / 1.00		[illegible] / 0.00	132 / 2.16		7.2 / 0.20			[illegible]			17[illegible][e]	38	8[illegible]	[illegible]	[illegible]		
5/7 1335	95	58	7.9	77	301	7.8	20 / 1.00	11 / 0.[illegible]	26 / 1.1[illegible]	5.[illegible] / 0.13	0.0 / 0.00	165 / 2.70	1[illegible] / 0.37	6.0 / 0.17	1.0 / 0.02	[illegible] / 0.0[illegible]	[illegible]	[illegible]	Fe [illegible] Al [illegible]; PO_4 [illegible] [d]	200[f]	[illegible]	[illegible]	[illegible]	[illegible]		
6/4 1600	84	70	7.2	80	[illegible]	7.8	24 / 1.20	11 / 0.92	38 / 1.65	7.0 / 0.18	0.0 / 0.00	192 / 3.15	25 / 0.52	7.0 / 0.20	1.1 / 0.02	[illegible] / 0.0[illegible]	0.2	2[illegible]		[illegible]0[f]	[illegible]	[illegible]	[illegible]			
7/16 1300	65	78	7.3	88	235	7.9	1.68[c]		28 / 1.22		0.0 / 0.00	135 / 2.21		5.2 / 0.15			[illegible]			[illegible][e]	4[illegible]	[illegible]	[illegible]	[illegible]		
8/1[illegible]	2[illegible]	7[illegible]	8.5	98	261	8.[illegible]	1.78[c]		2[illegible] / 1.[illegible]		0.0 / 0.0[illegible]	156 / 2.5[illegible]		4.5 / 0.1[illegible]			[illegible]			[illegible][e]	36	[illegible]	[illegible]	[illegible]		
9/9 17[illegible]	9.4	68	7.8	85	253	7.[illegible]	20 / 1.00	8.3 / 0.68	22 / 0.9[illegible]	5.[illegible] / 0.13	0.0 / 0.00	148 / 2.4[illegible]	9.[illegible] / 0.19	4.9 / 0.14	1.[illegible] / 0.02	[illegible] / 0.0[illegible]	[illegible]	2[illegible]	PO_4 [illegible] Cu [illegible]; Fe [illegible] Al [illegible] [d]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
10/14 [illegible]	11	58	8.9	87	[illegible]	7.[illegible]	1.90[c]		31 / 1.35		0.0 / 0.00	158 / 2.[illegible]9		12 / 0.34			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
11/1[illegible] 12[illegible]	[illegible]	62	[illegible]	97	376	[illegible].1	1.96[c]		47 / 2.04		6 / 0.20	168 / 2.75		2[illegible] / 0.[illegible]6			[illegible]		[illegible] 180	[illegible][e]	[illegible]	98	[illegible]	[illegible]		
12/9 15[illegible]	38	[illegible]	11.9	[illegible]	[illegible]	7.7	1.76[c]		39 / 1.70		0.0 / 0.00	162 / 2.66		14 / 0.39			[illegible]			[illegible][e]	[illegible]	98	[illegible]	[illegible]		

a Field pH.
b [illegible]
c Sum of calcium and magnesium in epm.
d Iron (Fe), aluminum (Al), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{6+}), reported here as [illegible] except as shown.
e Derived from conductivity vs TDS curves.
f Determined by addition of analyzed constituents.
g [illegible]
h [illegible] Computed from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, [illegible]
i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); [illegible]; Los Angeles Department of Water and Power (LADWP); City of Los Angeles, [illegible]; [illegible] Testing Laboratories (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

PIT RIVER NEAR MONTGOMERY CREEK (STA. 7)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/	Not Sampled - Inaccessible																								Median 2.3	
2/1	Not Sampled - Inaccessible																									
3/5 1045	4,960	48	11.4	98	150	7.5	1.16[g]		8.6 / 0.37		0.0 / 0.00	80 / 1.31		3.5 / 0.10			0.0			112[e]	24	58	0	50	Maximum 130	
4/8 1315	4,740	56	10.3	98	143	7.9	1.08[g]		7.9 / 0.34		0.0 / 0.00	78 / 1.28		3.5 / 0.10			0.0			107[e]	24	54	0	25	Minimum <0.045	
5/5 0750	2,870	55	10.0	94	138	7.5	11 / 0.55	6.4 / 0.53	8.2 / 0.36	1.4 / 0.04	0.0 / 0.00	80 / 1.31	4.8 / 0.10	3.5 / 0.10	0.4 / 0.01	0.2 / 0.01	0.1	29	Fe 0.09 PO_4 0.10 [d]	104[f]	24	54	0	2		
6/3 0800	2,680	57	10.1	97	113	7.1	0.86[g]		7.4 / 0.32		0.0 / 0.00	63 / 1.03		1.5 / 0.04			0.0			85[e]	27	43	0	12		
7/16 0810	780	66	8.8	94	153	7.7	1.12[g]		14 / 0.61		0.0 / 0.00	91 / 1.49		4.0 / 0.11			0.1			115[e]	35	56	0	1		
8/12 0930	3,780	66	9.3	99	155	8.1	1.12[g]		12 / 0.52		0.0 / 0.00	89 / 1.46		4.5 / 0.13			0.1			116[e]	32	56	0	1		
9/9 1110	10,460	65	9.0	95	154	8.0	11 / 0.55	6.9 / 0.57	12 / 0.52	2.3 / 0.06	0.0 / 0.00	90 / 1.48	1.0 / 0.02	4.5 / 0.13	1.0 / 0.02	0.1 / 0.01	0.0	34	PO_4 0.15 Al 0.01 [d] Cu 0.01	117[f]	31	56	0	4		
10/	Not Sampled																									
11/11 1535	4,080	49	10.9	95	157	7.5	1.08[g]		12 / 0.52		0.0 / 0.00	90 / 1.48		4.5 / 0.13			0.0			118[e]	32	54	0	5		
12/9 1125	4,030	43	11.9	96	169	7.5	1.24[g]		12 / 0.52		0.0 / 0.00	90 / 1.48		5.5 / 0.16			0.2			127[e]	30	62	0	30		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

PIT RIVER, SOUTH FORK NEAR LIKELY (STA. 18a)

Mineral constituents in parts per million / equivalents per million

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/	Not Sampled																								Median 2[illegible]	
2/[illegible] 1030	35	34	12.2	87	112	7.6	11 / 0.55	4.5 / 0.37	5.2 / 0.23	1.9 / 0.05	0.0 / 0.00	69 / 1.13	1.0 / 0.02	1.8 / 0.05	0.2 / 0.00	0.1 / 0.01	0.0	35		[illegible][f]	19	46	[illegible]		Maximum [illegible]	
3/[illegible] 1535	12	51	9.4	84	112	8.3	8.4 / 0.42	5.4 / 0.44	6.4 / 0.28	2.4 / 0.06	0.0 / 0.00	65 / 1.07	3.8 / 0.08	2.3 / 0.06	0.6 / 0.01	0.1 / 0.01	0.1	36		[illegible][f]	[illegible]	[illegible]	[illegible]		Minimum [illegible]	
4/9 0715	93	41	11.0	86	107	7.3	9.9 / 0.49	4.4 / 0.36	4.8 / 0.21	2.4 / 0.06	0.0 / 0.00	63 / 1.03	1.3 / 0.03	1.1 / 0.03	0.3 / 0.00	0.0 / 0.00	0.0	31		86[f]	19	[illegible]	[illegible]			
5/7 1215	66	57	8.9	80	114	8.1	12 / 0.60	4.4 / 0.36	4.8 / 0.21	2.4 / 0.06	0.0 / 0.00	71 / 1.16	1.9 / 0.04	1.0 / 0.03	0.8 / 0.01	0.1 / 0.01	0.1	33	Fe [illegible] Al [illegible] 16[d]; PO_4 0.1	[illegible][f]	17	48	[illegible]	2		
[illegible] 0900	104	62	8.5	86	131	7.9	1.00[c]		8.4 / 0.37		0.0 / 0.00	78 / 1.28		1.0 / 0.03			0.0			[illegible][f]	27	[illegible]	[illegible]	[illegible]		
7/16 14[illegible]	37	78	7.3	88	138	8.1	14 / 0.70	3.9 / 0.32	9.0 / 0.39	4.1 / 0.10	0.0 / 0.00	90 / 1.48	1.0 / 0.02	1.0 / 0.03	1.5 / 0.02	0.2 / 0.01	0.0	38		117[f]	26	[illegible]	[illegible]			
8/13 0725	162	65	7.8	82	162	7.7	15 / 0.75	5.5 / 0.45	11 / 0.48	4.7 / 0.12	0.0 / 0.00	95 / 1.56	6.0 / 0.12	4.5 / 0.13	0.3 / 0.00	0.2 / 0.01	0.1	38		132[f]	27	60	[illegible]			
9/10 0730	[illegible]	[illegible]	7.8	[illegible]	172	8.[illegible]	15 / 0.75	6.1 / 0.50	12 / 0.52	4.4 / 0.11	0.0 / 0.00	98 / 1.61	5.0 / 0.13	5.0 / 0.14	0.4 / 0.01	[illegible] / 0.00	[illegible]	40	Fe [illegible] Al 0.24[d]; PO_4 [illegible]	137[f]	28	63	[illegible]	[illegible]		
10/1[illegible] 0900	[illegible]	[illegible]	[illegible]	[illegible]	127	7.9	13 / 0.65	4.7 / 0.39	8.6 / 0.37	3.1 / 0.08	0.0 / 0.00	75 / 1.23	2.0 / 0.04	7.5 / 0.21	[illegible]	0.2 / 0.01	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			
11/1[illegible] 1315	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.5	[illegible]	[illegible]	[illegible]	[illegible]	0.0 / 0.00	71 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	97	105	7.4	11 / 0.57	3.5 / 0.29	7.[illegible] / 0.30	4.4 / 0.11	0.0 / 0.00	63 / 1.03	1.0 / 0.02	5.5 / 0.17	0.4 / 0.01	[illegible]	0.[illegible]	26	Fe [illegible] Zn [illegible][d]; Al [illegible]	[illegible][f]	[illegible]	42	[illegible]			

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

[illegible] (STA. [illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/6 [illegible]	55	53	10.0	92	263	7.3	[illegible][c]		17 / 0.74		0.0 / [illegible]	85 / 1.39		18 / 0.51			[illegible]			158[e]	[illegible]	[illegible]	[illegible]	[illegible]	Median [illegible]	
[illegible]/6 [illegible]30	[illegible]	56	[illegible]	100	[illegible]	7.9	3.12[c]		8.7 / [illegible]		0.0 / 0.00	184 / [illegible]		8.0 / 0.23			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
3/9 [illegible]	[illegible]	[illegible]	11.2	112	[illegible]	7.9	3.67[c]		23 / 1.00		0.0 / 0.00	203 / 3.33		18 / 0.51			0.6			[illegible]	[illegible]	[illegible]	17	3	Minimum [illegible]	
[illegible]/1 0930	23	[illegible]	10.3	101	336	7.9	3.16[c]		15 / 0.65		6 / 0.20	162 / 2.66		11 / 0.31			0.3		Tot. Alk. 174	[illegible]	17	[illegible]	15	[illegible]		
5/11 1305	82	59	12.6	124	[illegible]	8.2	18 / 0.90	25 / 2.02	9.2 / 0.40	0.9 / 0.02	6 / 0.20	160 / 2.62	18 / 0.37	6.8 / 0.19	0.2 / 0.00	0.0 / 0.00	0.1	15	Tot. Alk. 172 Al 0.10 Zn 0.01 PO_4 0.00[d]	178[f]	12	[illegible]	5	[illegible]		
6/11 0915	63	59	10.0	98	305	7.9	2.96[c]		8.8 / 0.38		0.0 / 0.00	176 / 2.88		3.5 / 0.10			0.2			184[e]	11	148	4	10		
7/1 0700	52	58	9.3	91	303	7.7	2.92[c]		9.4 / 0.41		0.0 / 0.00	177 / 2.90		4.8 / 0.14			0.0			182[e]	12	146	1	[illegible]		
8/11 1620	33	64	9.1	95	297	7.7	2.96[c]		10 / 0.44		7 / 0.23	164 / 2.69		5.0 / 0.14			0.3		Tot. Alk. 178	179[e]	13	[illegible]	[illegible]	[illegible]		
9/4 0915	28	62	9.9	100	303	7.9	37 / 1.85	13 / 1.11	9.0 / 0.39	2.0 / 0.05	0.0 / 0.00	177 / 2.90	14 / 0.29	4.8 / 0.14	0.2 / 0.00	0.2 / 0.01	0.2	18	PO_4 0.05 Al 0.08[d]	185[f]	11	148	3	3		
10/14 0930	14	58	9.2	90	318	7.9	3.24[c]		11 / 0.48		0.0 / 0.00	185 / 3.03		10 / 0.28			0.2			191[e]	13	162	10	1		
11/13 1700	73	55	10.3	97	303	7.9	3.00[c]		10 / 0.44		0.0 / 0.00	179 / 2.93		5.2 / 0.15			0.1			182[e]	13	150	3	4		
12/4 0955	12	47	10.3	88	318	7.4	3.06[c]		13 / 0.57		0.0 / 0.00	187 / 3.06		7.8 / 0.22			0.2			191[e]	16	153	0	2		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

[illegible] CREEK [illegible] FOOTHILL [illegible]

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
[illegible]																										
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14 / [illegible]	.7 / [illegible]	[illegible]	160 / [illegible]	[illegible]	24 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tot alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible] •	[illegible]	[illegible]	[illegible]	[illegible]	7.[illegible]	[illegible]	[illegible]	[illegible] / .7	[illegible]	[illegible]	[illegible] / 4.1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tot alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	Dry																									
[illegible]	[illegible]	[illegible]			[illegible]		[illegible]	26 / [illegible]	[illegible]	1.2 / [illegible]	[illegible]	[illegible] / .80	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tot Alk [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	Dry																									
[illegible]	Dry																									
[illegible]	Dry																									
[illegible]	Dry																									
[illegible]	Dry																									
[illegible]	Dry																									

• Daily mean

[illegible footnotes]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

ROCK SLOUGH NEAR KNIGHTSEN (STA. 10[illegible])

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Tidal																									USGS
1/13 1505		55	8.2	77	711	7.2	3.74[c]		67/2.91		0.0/0.00	86/1.41		96/2.71			0.3			409[e]	44	187	116	20	Median 23.	
2/10 1310		49	9.2	80	807	7.2	3.92[c]		89/3.87		0.0/0.00	127/2.08		120/3.38			0.5			464[e]	50	196	92	3	Maximum >7,000.	
3/11 1530		61	8.3	84	737	7.2	3.44[c]		80/3.48		0.0/0.00	120/1.97		106/2.99			0.7			424[e]	50	172	74	40	Minimum 0.62	
4/3 0845		64	6.7	70	427	7.1	2.28[c]		36/1.57		0.0/0.00	88/1.44		54/1.52			0.2			248[e]	41	114	42	30		
5/12 1430		70	6.3	70	220	7.2	15/0.75	7.9/0.65	19/0.83	2.6/0.07	0.0/0.00	74/1.21	21/0.44	21/0.59	0.6/0.01	0.2/0.01	0.1	16	Fe 0.26 Cu 0.05 d Al 0.22 PO_4 0.20	140[f]	36	70	9	20		
6/10 0815		70	6.0	67	257	7.2	1.52[c]		22/0.96		0.0/0.00	87/1.43		25/0.70			0.1			148[e]	39	76	5	50		
7/2 1550		78	7.2	87	577	7.3	2.23[c]		72/3.13		0.0/0.00	93/1.52		108/3.05			0.2			332[e]	58	112	36	20		
8/10 1345		79	7.0	85	1,190	7.2	3.28[c]		171/7.44		0.0/0.00	86/1.41		295/8.32			0.2			685[e]	69	164	93	70		
9/8 0730		80	6.8	84	769	7.2	24/1.20	19/1.60	101/4.39	5.8/0.15	0.0/0.00	108/1.77	35/0.73	168/4.74	2.2/0.04	0.2/0.01	0.3	19	Fe 0.06 Al 0.12 PO_4 0.15 d	428[f]	60	140	51			
10/6 1130		68	7.5	82	415	7.3	1.98[c]		50/2.18		0.0/0.00	103/1.69		74/2.09			0.2			238[e]	52	99	15	25		
11/3 1030		58	8.5	83	355	7.3	1.96[c]		33/1.44		0.0/0.00	106/1.74		47/1.33			0.1			204[e]	42	98	11	30		
12/8 0615		46	9.0	75	505	7.2	2.54[c]		40/1.74		0.0/0.00	119/1.95		74/2.09			0.2			290[e]	41	127	29	12		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT BEND (STA. 12c)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
[illegible] 1415	1[illegible],800	[illegible]	1[illegible].3	98	111	7.4	0.88[c]		6.5 / 0.28		[illegible] / 0.00	62 / 1.02		1.8 / 0.05			[illegible]			86[e]	24	44	[illegible]	[illegible]	Median 1.6	
9/1 [illegible]	8,100	59	10.[illegible]	10[illegible]	116	7.[illegible]	[illegible] / 0.50	4.6 / 0.38	6.3 / 0.27	1.5 / 0.04	[illegible].0 / 0.00	63 / 1.03	3.4 / 0.07	2.0 / 0.06	0.[illegible] / 0.00	0.[illegible] / 0.00	0.0	26	Fe [illegible]; Zn 0.04; Cu [illegible][d]; PO_4 0.00	85[f]	23	44	[illegible]	[illegible]	Maximum [illegible]	
10/12 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	7.[illegible]	1.00[c]		6.1 / 0.27		0.0 / 0.00	66 / 1.08		4.8 / 0.14			0.[illegible]			94[e]	[illegible]	[illegible]	[illegible]	[illegible]	Minimum 2[illegible]	
11/3 [illegible]	5,57[illegible]	[illegible]	10.4	101	134	7.[illegible]	1.[illegible][c]		8.[illegible] / 0.35		0.0 / [illegible]	74 / 1.21		2.4 / 0.07			[illegible]			[illegible][e]	26	[illegible]	[illegible]	4		
[illegible]	4,560	[illegible]	[illegible].5	97	139	7.3	1.06[c]		8.7 / 0.38		[illegible]	79 / 1.29		3.2 / [illegible]			[illegible]			107[e]	[illegible]	[illegible]	[illegible]	4		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWDSC), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT BEND (STA. 12c)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO3)	Bicarbonate (HCO3)	Sulfate (SO4)	Chloride (Cl)	Nitrate (NO3)	Fluoride (F)	Boron (B)	Silica (SiO2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as CaCO3 Total ppm	Hardness as CaCO3 N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959	Average Daily Mean																									USGS
1/1-11	11,600				139	7.4	12/0.60	5.8/0.48	8.4/0.37	1.6/0.04	0.0/0.00	69/1.13	10/0.21	4.0/0.11	0.3/0.00	0.2/0.01	0.0	34	Fe 0.04 Zn 0.11 Cu 0.05	110	25	54	0			
1/12-25	16,000				136	7.2	12/0.60	5.8/0.48	8.6/0.37	1.8/0.05	0.0/0.00	67/1.10	12/0.25	4.0/0.11	0.2/0.00	0.2/0.01	0.0	33	Fe 0.03 Zn 0.17 Cu 0.05	111	25	54	0			
1/26-31	24,700				120	6.8	10/0.50	5.8/0.48	7.1/0.31	1.6/0.04	0.0/0.00	58/0.95	11/0.23	4.0/0.11	0.3/0.00	0.1/0.01	0.1	30	Fe 0.03 Zn 0.15 Cu 0.01	90	23	49	1			
2/1-15	11,300				121	7.0	11/0.55	4.7/0.39	6.9/0.30	1.4/0.04	0.0/0.00	58/0.95	13/0.27	3.0/0.08	0.0/0.00	0.1/0.01	0.0	24	Fe 0.06 Cu 0.03 Zn 0.10	93	23	47	0			
2/16	65,900				73.2	6.2	0.60[c]		3.2/0.14	1.3/0.03	0.0/0.00	28/0.46	10/0.21	2.0/0.06	1.7/0.03			16	Zn 0.19	48	18	30	7			
2/17-28	28,500				118	6.9	10/0.50	5.1/0.42	6.7/0.29	1.3/0.03	0.0/0.00	54/0.89	14/0.29	2.0/0.06	0.0/0.00	0.1/0.01	0.1	23	Fe 0.08 Cu 0.01 Zn 0.12	93	22	46	2			
3/1-15	8,440				136	6.7	13/0.65	5.7/0.47	7.2/0.31	1.3/0.03	0.0/0.00	66/1.08	14/0.29	3.0/0.08	0.0/0.00	0.2/0.01	0.0	27	Fe 0.03 Cu 0.01 Zn 0.18	104	21	56	2			
3/16-31	6,790				134	6.9	12/0.60	5.8/0.48	7.8/0.34	1.3/0.03	0.0/0.00	64/1.05	16/0.33	3.0/0.08	0.0/0.00	0.1/0.01	0.0	25	Fe 0.03 Cu 0.03 Zn 0.20	103	23	54	2			
4/1-16	5,300				125	7.8	12/0.60	4.6/0.38	6.8/0.30	1.2/0.03	0.0/0.00	63/1.03	5.2/0.11	3.8/0.11	0.9/0.01	0.0/0.00	0.0	25	Fe 0.01 Zn 0.11 Cu 0.00	91	23	49	0			
4/17-30	8,980				118	7.8	10/0.50	4.6/0.38	6.8/0.30	1.4/0.04	0.0/0.00	61/1.00	5.2/0.11	3.2/0.09	0.7/0.01	0.0/0.00	0.0	27	Zn 0.10 Fe 0.00 Cu 0.00	89	25	44	0			
5/1-16	8,390				116	7.7	10/0.50	4.9/0.40	6.6/0.29	1.4/0.04	0.0/0.00	62/1.02	4.4/0.09	2.8/0.08	0.8/0.01	0.0/0.00	0.0	26	Zn 0.07 Fe 0.00 Cu 0.00	88	24	45	0			
5/18-31	8,160				117	7.8	11/0.55	4.0/0.33	7.1/0.31	1.9/0.05	0.0/0.00	62/1.02	4.0/0.08	3.3/0.09	0.7/0.01	0.0/0.00	0.0	26	Zn 0.07 Fe 0.00 Cu 0.00	89	25	44	0			
6/1-12	8,500				122	7.6	11/0.55	4.3/0.35	7.4/0.32	1.8/0.05	0.0/0.00	64/1.05	5.2/0.11	2.2/0.06	0.7/0.01	0.0/0.00	0.0	26	Fe 0.01 Zn 0.07 Cu 0.00	91	25	45	0			
6/13-30	9,650				119	7.7	11/0.55	4.3/0.35	7.3/0.32	1.7/0.04	0.0/0.00	66/1.08	4.2/0.09	2.5/0.07	0.9/0.01	0.0/0.00	0.0	26	Fe 0.01 Zn 0.07 Cu 0.00	91	25	45	0			

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as 0.0/0.00 except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);, San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

SACRAMENTO RIVER AT BEND (STA. [illegible] continued)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents[d]	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1957	[illegible]																									[illegible]
7/1-17	1[illegible]				11[illegible]	[illegible]7	[illegible]	[illegible] / 0.40	7.2 / 0.31	1.4 / 0.04	[illegible]	[illegible]	[illegible] / [illegible]11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible] Cu [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
7/18-[illegible]	11,400				11[illegible]	7.7	11 / [illegible]	4.4 / [illegible]36	7.[illegible] / 0.3[illegible]	1.[illegible] / [illegible]	[illegible]	[illegible]4 / 1.[illegible]	3.2 / 0.07	[illegible] / [illegible]	1.3 / 0.02	[illegible]	[illegible]	27	Fe [illegible] Cu [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				11[illegible]	7.2	11 / [illegible]	[illegible]	[illegible]	1.4 / 0.04	[illegible]	[illegible]4 / 1.[illegible]	9.0 / 0.19	2.2 / [illegible]	[illegible].8 / 0.01	[illegible]	[illegible]	[illegible]	Fe [illegible] Cu [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]1,400				[illegible]4	7.4	1[illegible] / 0.6[illegible]	4.[illegible] / 0.40	6.9 / 0.30	1.[illegible] / 0.04	[illegible].0 / 0.00	63 / 1.03	[illegible] / 0.19	2.[illegible] / 0.07	[illegible]2 / 0.0[illegible]	.1 / 0.01	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]				117	7.1	1[illegible] / [illegible]	[illegible].1 / [illegible].42	8.[illegible] / 0.35	[illegible] / [illegible]	[illegible] / 0.00	64 / 1.05	12 / 0.25	1.8 / 0.05	[illegible] / 0.01	[illegible].1 / 0.01	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]				[illegible]	[illegible].8	1[illegible] / [illegible]	[illegible].8 / 0.4[illegible]	7.4 / 0.32	[illegible] / 0.02	[illegible] / 0.00	68 / 1.11	[illegible]	3[illegible] / 0.11	0.2 / 0.00	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]				[illegible]9	7.[illegible]	[illegible] / 0.40	3.6 / 0.30	6.1 / 0.27	[illegible] / 0.02	[illegible] / 0.00	45 / 0.74	7.[illegible] / 0.1[illegible]	3.6 / [illegible]	[illegible]7 / [illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]77[illegible]				[illegible]	7.[illegible]	11 / [illegible]	[illegible].7 / [illegible].47	7.8 / 0.34	[illegible].7 / 0.02	[illegible] / 0.00	67 / 1.10	1[illegible] / 0.21	[illegible]	.1 / 0.00	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]				[illegible]	[illegible]	11 / [illegible]	[illegible] / 0.41	[illegible].3 / 0.27	1.2 / 0.03	[illegible] / 0.00	66 / 1.0[illegible]	[illegible].4 / 0.11	1.[illegible] / [illegible]	1.1 / 0.02	.1 / 0.01	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	11 / [illegible]	[illegible] / [illegible].43	[illegible].2 / 0.36	1.[illegible] / 0.04	[illegible] / 0.00	71 / 1.16	5.6 / 0.12	2.[illegible] / [illegible]	[illegible].4 / 0.01	[illegible] / 0.01	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	4,[illegible]				[illegible]	[illegible]	11 / [illegible]	[illegible].2 / [illegible]	8.2 / 0.36	1.3 / 0.03	[illegible] / 0.00	7[illegible] / 1.2[illegible]	[illegible] / [illegible].10	3.2 / 0.09	1.1 / 0.02	[illegible]	[illegible]	[illegible]	Fe [illegible] [illegible]n 0.1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	7.[illegible]	1[illegible] / [illegible]	[illegible] / 0.4[illegible]	[illegible].4 / [illegible].37	1[illegible] / [illegible].04	[illegible] / 0.00	74 / 1.21	6.[illegible] / 0.12	[illegible]	[illegible]	[illegible].1 / [illegible].01	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	1[illegible] / 0.6[illegible]	[illegible] / [illegible].5[illegible]	[illegible].3 / 0.36	2.[illegible] / [illegible].05	[illegible] / 0.00	79 / 1.29	7.[illegible] / 0.1[illegible]	[illegible] / [illegible].17	[illegible]	[illegible]	[illegible].1	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]16-[illegible]	[illegible],400				[illegible]	[illegible]	13 / [illegible]	[illegible]	[illegible]7 / 0.38	[illegible]	[illegible]	7[illegible] / 1.2[illegible]	[illegible] / [illegible].17	[illegible] / 0.14	[illegible]7 / [illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]				

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWDSC), Los Angeles Department of Water and Power (LADWP), City of Los Angeles Department of Public Health (LADPH), City of Long Beach Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL) or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT BUTTE CITY (STA. 87a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
8/11 1320	10,200	65	9.3	97	117	7.4[a]	0.92[c]		6.2 / 0.27		0.0 / 0.00	64 / 1.05		2.8 / 0.08			0.0			83[e]	23	46	0	2	Median 23.	
9/8 0905	6,220	68	8.6	94	127	7.7[b]	14 / 0.70	5.1 / 0.42	7.4 / 0.32	2.2 / 0.06	0.0 / 0.00	70 / 1.15	11 / 0.23	3.5 / 0.10	0.3 / 0.00	0.1 / 0.01	0.0	26	Fe 0.01 PO_4 0.5 [d]	104[f]	21	56	0		Maximum 62.	
10/13 1020	5,010	63			140	7.4[a]	1.20[c]		8.6 / 0.37		0.0 / 0.00	74 / 1.21		5.5 / 0.16			0.1			100[e]	24	60	0	2	Minimum 2.3	
11/10 1000	4,380	55	10.2	96	153	7.5[a]	1.20[c]		9.6 / 0.42		0.0 / 0.00	86 / 1.41		5.5 / 0.16			0.0			109[e]	26	60	0	8		
12/2 1540	4,080	53	10.7	98	157	7.4[a]	1.28[c]		9.7 / 0.42		0.0 / 0.00	84 / 1.38		4.5 / 0.13			0.0			112[e]	25	64	0	15		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT BUTTE CITY (STA. 87a)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
[illegible]	Average Daily Mean																									[illegible]
[illegible]	6,16[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.1 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	106	[illegible]	50	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / .18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / .04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible] / .40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
3/1-[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
3/17-[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible] / .46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	6,[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1 / 0.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]-6	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / .01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

a Field pH
b Laboratory pH
c Sum of calcium and magnesium in epm
d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown
e Derived from conductivity vs TDS curves
f Determined by addition of analyzed constituents
g Gravimetric determination
h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service
i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR) as indicated

TABLE B-4
ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT BUTTE CITY (STA. 87a continued)

Mineral constituents in parts per million / equivalents per million (each cell: ppm / epm)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
[illegible]	7,357				133	7.[illegible]	[illegible] / 0.55	5.2 / [illegible]	7.[illegible] / 0.34	1.3 / [illegible]	[illegible]	[illegible] / 1.11	[illegible] / 0.10	3.2 / 0.09	[illegible]	[illegible] / 0.01	[illegible]	[illegible]	Fe [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]			
[illegible]	7,715				132	7.[illegible]	12 / 0.60	[illegible].7 / 0.3[illegible]	7.7 / 0.33	1.3 / 0.03	0.0 / 0.00	70 / 1.15	3.0 / 0.06	3.2 / 0.09	[illegible]	.1 / 0.01	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
7/10-11, 13, 16-17	7,266				137	7.[illegible]	11 / 0.55	[illegible] / 0.39	7.7 / 0.33	1.4 / 0.04	[illegible].0 / 0.00	68 / 1.11	3.0 / 0.06	3.[illegible] / 0.08	[illegible] / 0.01	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
7/18-[illegible]	8,240				132	7.3	11 / 0.55	[illegible].2 / 0.43	7.7 / 0.33	1.3 / 0.03	[illegible] / 0.00	69 / 1.13	5.0 / 0.10	2.6 / 0.07	[illegible] / 0.01	[illegible].1 / 0.01	[illegible]	26	Fe [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]			
7/29-31, 8/1-15	9,529				125	7.9	11 / 0.55	5.1 / 0.42	7.2 / 0.31	1.3 / [illegible]	0.0 / 0.00	67 / 1.10	4.0 / 0.08	2.6 / 0.07	0.6 / 0.01	0.1 / 0.01	0.0	27	Fe 0.00	[illegible][f]	24	[illegible]	0			
8/17-26	8,084				131	7.2	12 / 0.60	4.6 / 0.38	7.4 / 0.32	1.6 / 0.04	0.0 / 0.00	68 / 1.11	4.0 / 0.08	2.8 / 0.08	0.8 / 0.01	0.1 / 0.01	0.0	26	Fe [illegible]	[illegible][f]	24	[illegible]	0			
8/28-31, 9/1-10	6,402				[illegible]35	8.1	12 / 0.60	5.1 / 0.42	7.4 / 0.32	1.[illegible] / 0.04	0.0 / 0.00	73 / 1.20	4.[illegible] / 0.08	2.7 / 0.08	0.4 / 0.01	[illegible].0 / 0.00	0.0	28	Fe [illegible]	97[f]	23	51	0			
9/11-17	5,692				142	7.6	12 / 0.60	5.5 / [illegible]	8.5 / 0.37	1.7 / 0.04	0.0 / 0.00	75 / 1.23	3.0 / 0.06	4.0 / 0.11	0.7 / 0.01	0.0 / 0.00	0.1	28	Fe [illegible]	100[f]	25	53	0			
9/19-21	9,189				139	7.2	11 / 0.55	5.[illegible] / [illegible]	7.7 / 0.33	[illegible]	0.0 / 0.00	61 / 1.00	8.[illegible] / 0.17	4.0 / 0.11	1.[illegible] / 0.03	[illegible].1 / 0.01	[illegible]	[illegible]	Fe [illegible]	94[f]	24	49	0			
9/22-30	6,183				142	7.5	12 / [illegible]	5.8 / [illegible]	9.3 / 0.40	2.[illegible] / 0.05	[illegible] / 0.00	73 / 1.20	6.0 / 0.12	5.4 / 0.15	1.8 / 0.01	[illegible].0 / 0.00	0.1	[illegible]	Fe [illegible]	106[f]	26	5[illegible]	0			
10/1-15	4,824				149	7.1	12 / 0.60	6.3 / 0.52	7.5 / 0.33	1.5 / 0.04	0.0 / 0.00	76 / 1.25	7.0 / 0.15	3.2 / 0.09	0.[illegible] / 0.00	[illegible] / 0.00	0.1	35	Fe 0.00	110[f]	22	[illegible]	[illegible]			
10/16-31	4,679				154	[illegible]	12 / [illegible]	6.3 / 0.52	7.7 / 0.33	1.4 / [illegible]	[illegible] / 0.00	80 / 1.31	6.4 / .13	3.8 / 0.11	[illegible]	[illegible] / 0.00	0.1	35	Fe [illegible]	112[f]	22	[illegible]	0			
11/1-5	4,800				154	7.1	13 / [illegible]	7.2 / 0.59	[illegible] / 0.35	1.[illegible] / 0.04	[illegible] / 0.00	82 / 1.34	[illegible] / 0.10	3.4 / 0.10	[illegible] / 0.01	[illegible] / 0.02	[illegible]	[illegible]	Fe 0.00	11[illegible][f]	[illegible]	[illegible]	[illegible]			
11/6-30	4,046				161	7.1	13 / 0.65	6.7 / 0.55	[illegible].3 / 0.40	1.[illegible] / 0.05	0.0 / 0.00	84 / 1.38	7.0 / 0.15	5.0 / 0.14	[illegible] / 0.01	[illegible] / 0.01	0.1	[illegible]	Fe [illegible]	120[f]	[illegible]	60	0			

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

SACRAMENTO RIVER AT [illegible] (STA. [illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/12 [illegible]	24,200	47	9.8	[illegible]	116	7.3[b]	9.6 / 0.48	4.4 / [illegible]	[illegible] / 0.21	1.[illegible] / [illegible]	[illegible]	43 / [illegible]	[illegible] / [illegible]	[illegible] / 0.15	[illegible] / 0.03	[illegible] / [illegible]	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			
[illegible] [illegible]	11,[illegible]	47	[illegible]	88	138	[illegible][b]	13 / [illegible]	[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			
3/9 [illegible]	[illegible]	[illegible]			160	[illegible][b]	14 / 0.70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			
[illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible][b]	14 / [illegible]	[illegible]	7.7 / [illegible]	1.4 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			
[illegible] [illegible]	[illegible],400	[illegible]	[illegible]	[illegible]	136	7.[illegible][a]	[illegible] / [illegible]	6.1 / [illegible]	[illegible] / [illegible]	1.[illegible] / [illegible]	[illegible]	[illegible] / 1.15	[illegible].8 / [illegible]	[illegible] / [illegible]	[illegible]	[illegible]	0.0	26	Fe [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible][a]	13 / [illegible]	[illegible] / 0.49	7.4 / 0.32	1.[illegible] / [illegible]	[illegible]	7[illegible] / [illegible]	[illegible] / [illegible]	4.[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			
7/6 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible][a]	13 / 0.65	[illegible].3 / 0.27	6.4 / [illegible]	1.[illegible] / [illegible]	[illegible]	[illegible] / [illegible]	[illegible]	[illegible] / [illegible]	[illegible]	[illegible] / 0.00	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			
[illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.[illegible][a]	[illegible]	[illegible]	[illegible]	1.[illegible] / [illegible]	[illegible]	[illegible] / 1.07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			
[illegible] 1400	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible][a]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.6[a]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.[illegible][a]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]			
[illegible] [illegible]	[illegible]	[illegible]	[illegible]	95	[illegible]	7.[illegible][a]	14 / [illegible]	[illegible]	11 / [illegible]	1.9 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]	[illegible]			

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), [illegible], Al, arsenic (As), [illegible] lead (Pb), manganese (Mn), zinc (Zn), and hexavalent [illegible], reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g [illegible] determination

h Annual [illegible] respectively. Calculated from analyses of [illegible] monthly samples made by California Department of Public Health, [illegible]

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of [illegible], [illegible] (USPHS), [illegible] District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), [illegible] (LACDPW), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT DELTA (STA. 11)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
Mineral constituents in parts per million / equivalents per million																										
[illegible]																										USGS
1/[illegible]	Not Sampled																									
2/[illegible]	Not Sampled																									
3/[illegible]	[illegible],44	4[illegible]	11.2	96	[illegible].5	7.3	0.68[c]		3.5/0.15		0.0/0.00	42/0.69		3.0/0.08			0.0			60[e]	15	34	[illegible]	1[illegible]	Median [illegible]	
4/[illegible]	2,[illegible]	[illegible]	10.7	94	81.7	7.5	0.80[c]		2.2/0.10		0.0/0.00	42/0.69		2.5/0.07			0.2			58[e]	11	40	[illegible]	20	Maximum 230	
5/[illegible]	1,[illegible]	52	1[illegible]	[illegible]3	[illegible]9.3	7.3	5.8/0.29	6.0/0.49	3.0/0.13	0.3/0.01	0.0/0.00	46/0.75	2.9/0.06	3.2/0.09	0.0/0.00	0.0/0.00	0.0	20	Fe 0.01 Al 0.04 [d] PO4 0.00	64[f]	14	33	1	1	Minimum 0.23	
6/3 1000	628	61	[illegible]	100	97.3	7.3	0.88[c]		4.6/0.20		0.0/0.00	51/0.84		4.5/0.13			0.1			60[e]	19	44	2	15		
7/13 1345	246	74	9.7	101	140	8.1	1.08[c]		9.6/0.42		3/0.10	69/1.13		7.0/0.20			0.1		Tot. Alk 75	100[e]	28	54	0	1		
8/10 1245	195	73	9.3	107	151	8.3	1.24[c]		12/0.52		0.0/0.00	79/1.29		10/0.28			0.3			108[e]	30	62	0	2		
9/9 0730	182	64	8.2	86	162	7.5	7.6/0.38	8.5/0.70	12/0.52	1.7/0.04	0.0/0.00	83/1.36	2.0/0.04	9.5/0.27	0.2/0.00	0.1/0.01	0.2	34	PO4 0.05 Al 0.03 [d]	117[f]	32	54	0	14		
10/12 1530	222	59	10.1	100	151	7.5	1.15[c]		11/0.48		0.0/0.00	76/1.25		9.0/0.25			0.1			108[e]	29	58	0	6		
11/9 1325	216	47	11.6	99	149	7.7	1.06[c]		12/0.52		0.0/0.00	77/1.26		11/0.31			0.3			106[e]	33	53	0	1		
12/7 1500	210	40	12.3	99	141	7.7	1.22[c]		12/0.52		0.0/0.00	76/1.25		9.0/0.25			0.2			101[e]	30	61	0	10		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
							Mineral constituents in parts per million / equivalents per million																			
[illegible]																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
• [illegible]																										

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT KESWICK (STA. 1?)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/6 0900	4,240	51	[illegible]	83	134	7.1[a]	10 / 0.50	6.3 / 0.52	7.7 / 0.33	1.4 / 0.04	0.0 / 0.00	69 / 1.13	9.6 / 0.20	3.0 / 0.08	0.5 / 0.01	0.3 / 0.02	0.0	29	Fe 0.15 Al 0.15[d] Zn 0.10	102[f]	24	[illegible]	[illegible]		Median [illegible]	
2/[illegible] 1100	10,300	50	[illegible]	84	109	7.1[a]	0.82[c]		6.1 / 0.27		0.0 / 0.00	54 / 0.89		3.0 / 0.08			0.0			79[e]	25	41	0	3	Maximum 23.	
3/2 1420	7,430	50	10.8	95	128	7.0[a]	0.96[c]		6.8 / 0.30		0.0 / 0.00	58 / 0.95		3.8 / 0.11			0.0			[illegible]	24	48	0	30	Minimum <0.045	
4/6 1445	3,290	52	11.0	99	115	7.1[a]	0.96[c]		5.0 / 0.22		0.0 / 0.00	52 / 0.85		2.8 / 0.08			0.0			83[e]	19	48	[illegible]	35		
5/5 0950	7,530	50	10.7	94	107	7.7[a]	8.8 / 0.44	4.4 / 0.36	5.4 / 0.23	1.1 / 0.03	0.0 / 0.00	55 / 0.90	4.8 / 0.10	2.5 / 0.07	0.6 / 0.01	0.1 / 0.01	0.1	25	Fe 0.22 Al 0.06[d] Zn 0.08 PO_4 0.05	[illegible][f]	22	[illegible]	0	[illegible]		
6/2 1430	7,540	50	10.3	91	109	7.2[a]	0.96[c]		5.6 / 0.24		0.0 / 0.00	58 / 0.95		3.5 / 0.10			0.0			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
7/7 1645	10,600	50	11.2	99	112	7.1[a]	0.88[c]		6.2 / 0.27		0.0 / 0.00	60 / 0.98		2.2 / 0.06			0.0			[illegible][e]	[illegible]	44	0	3		
8/4 1530	13,800	52	9.0	81	112	7.3[a]	0.88[c]		6.2 / 0.27		0.0 / 0.00	60 / 0.98		2.5 / 0.07			0.1			81[e]	23	44	0	25		
9/8 1545	7,720	56	9.0	86	113	7.3[b]	11 / 0.55	4.3 / 0.35	6.0 / 0.26	1.4 / 0.04	0.0 / 0.00	63 / 1.03	5.0 / 0.10	3.0 / 0.08	1.0 / 0.02	0.1 / 0.01	0.0	25	PO_4 0.05 Al 0.08[d] Cu 0.01	88[f]	22	45	0	3		
10/13 1720	5,190	57	9.8	95	114	7.1	0.96[c]		3.9 / 0.17		0.0 / 0.00	62 / 1.02		3.0 / 0.08			0.0			82[e]	15	48	0	8		
11/10 1550	4,350	59	8.0	79	130	7.1[a]	1.06[c]		8.5 / 0.37		0.0 / 0.00	73 / 1.20		4.0 / 0.11			0.0			94[e]	26	53	0	3		
12/2 0845	3,690	54	9.5	90	134	7.2[a]	1.06[c]		8.4 / 0.37		0.0 / 0.00	76 / 1.25		3.0 / 0.08			0.1			97[e]	26	[illegible]	[illegible]	3		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

SACRAMENTO RIVER AT KNIGHTS LANDING ([illegible]A. 14)

Mineral constituents in parts per million / equivalents per million

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/12 1400	26,[illegible]	54	[illegible].9	92	[illegible]	7.[illegible][b]	[illegible] / [illegible].84[c]		[illegible] / [illegible]		[illegible].0 / [illegible].00	36 / [illegible]		6.[illegible] / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Median [illegible]	
2/9 1400	1[illegible]	47	1[illegible].4	89	[illegible]3	7.9[b]	[illegible] / 1.32[c]		1[illegible] / 0.[illegible]5		[illegible].0 / 0.00	86 / 1.41		[illegible] / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
3/9 1415	14,800	55			[illegible]2	7.7[b]	[illegible] / 1.[illegible]2[c]		14 / [illegible].61		[illegible] / [illegible]	[illegible]6 / 1.57		11 / [illegible]1			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Minimum [illegible]	
4/[illegible] 1415	8,[illegible]	[illegible]3	8.6	89	180	7.8[b]	[illegible] / 1.44[c]		8.8 / [illegible]		[illegible] / [illegible]	[illegible] / 1.34		7.5 / [illegible].21			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
5/4 1300	6,8[illegible]	61	8.7	88	195	7.2[a]	14 / [illegible].70	8.3 / [illegible].68	1[illegible] / [illegible].52	1.4 / [illegible]	[illegible] / [illegible].00	84 / 1.[illegible]	[illegible] / 0.31	8.5 / 0.24	[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible] Al [illegible] [illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
6/1 0745	6,[illegible]	68	7.8	[illegible]	323	7.4[a]	[illegible] / 1.92[c]		34 / 1.4[illegible]		[illegible] / [illegible]	1[illegible] / 2.1[illegible]		17 / [illegible].48			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
7/[illegible] 1125	[illegible]*	7[illegible]	8.2	91	187	7.4[a]	[illegible] / 1.32[c]		14 / [illegible].61		[illegible] / [illegible]	87 / 1.43		[illegible]9 / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
8/1[illegible] 1[illegible]	9,42[illegible]*	70	[illegible]	[illegible]	[illegible]	[illegible][a]	[illegible] / 1.30[c]		15 / 0.6[illegible]		[illegible] / [illegible]	[illegible]2 / 1.34		[illegible] / [illegible]			[illegible]1			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
9/7 0915	8,080*	7[illegible]	8.5	95	180	7.2[a]	14 / [illegible].7[illegible]	6.8 / 0.56	14 / 0.61	1.2 / [illegible].03	[illegible] / 0.[illegible]	88 / 1.44	9.[illegible] / [illegible].19	7.5 / [illegible].21	[illegible]1 / [illegible]	[illegible]	[illegible]1	27	Cu [illegible] PO4 [illegible] [illegible][d]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
10/[illegible] 151[illegible]	5,720*	62	[illegible]	97	156	7.8[a]	[illegible] / 1.21[c]		9.1 / 0.40		[illegible] / 0.00	83 / 1.36		[illegible] / 0.1[illegible]			[illegible]1			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
11/1[illegible] 14[illegible]	[illegible]*	58	1[illegible].1	98	265	7.6[a]	[illegible] / 1.72[c]		27 / 1.17		[illegible].0 / [illegible]	12[illegible] / 1.97		14 / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
12/4 1[illegible]	4,87[illegible]*	[illegible]	10.7	94	182	7.5[a]	[illegible] / 1.36[c]		13 / [illegible].57		0.0 / 0.00	95 / 1.56		7.[illegible] / 0.20			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

* Daily Mean

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT KNIGHTS LANDING (STA. 14)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/5-10					162	7.0	12 0.60	6.8 0.56	11 0.48	1.7 0.04	0.0 0.00	82 1.34	1.9 0.04	9.5 0.27	1.1 0.02	0.1 0.01	0.0	22	Fe 0.05	106	29	58	0			
1/11-16					111	7.3	9.4 0.47	5.0 0.41	5.0 0.22	1.1 0.03	0.0 0.00	44 0.72	11 0.23	4.4 0.12	2.6 0.04	0.0 0.00	0.1	20	Fe 0.12	81	19	44	8			
1/17-31					131	7.4	11 0.55	6.0 0.49	6.3 0.27	1.0 0.03	0.0 0.00	63 1.03	5.8 0.12	5.0 0.14	1.0 0.02	0.0 0.00	0.1	26	Fe 0.10	93	20	52	0			
2/1-24					134	7.3	11 0.55	6.0 0.49	6.4 0.28	0.9 0.02	0.0 0.00	62 1.02	7.7 0.16	5.5 0.16	0.9 0.01	0.0 0.00	0.0	25	Fe 0.06	94	21	52	1			
2/25-3/3					162	7.6	14 0.70	7.5 0.62	7.2 0.31	1.0 0.03	0.0 0.00	78 1.28	8.6 0.18	5.8 0.16	0.8 0.01	0.0 0.00	0.0	24	Fe 0.03	107	19	66	2			
3/4-11					175	8.0	16 0.80	7.8 0.64	8.6 0.37	1.0 0.03	0.0 0.00	84 1.38	12 0.25	7.8 0.22	0.6 0.01	0.0 0.00	0.1	24	Fe 0.01	119	20	72	3			
3/12-23					203	7.7	16 0.80	9.1 0.75	11 0.48	1.0 0.03	0.0 0.00	92 1.51	17 0.35	9.5 0.27	0.9 0.01	0.0 0.00	0.1	26	Fe 0.01	136	23	77	2			
3/24-31					178	7.6	16 0.80	8.3 0.68	8.5 0.37	1.1 0.03	0.0 0.00	90 1.48	9.6 0.20	7.0 0.20	0.9 0.01	0.0 0.00	0.1	26	Fe 0.01	122	20	74	0			
4/1-5					194	7.3	16 0.80	8.3 0.68	11 0.48	0.7 0.02	0.0 0.00	94 1.54	12 0.25	7.8 0.22	0.8 0.01	0.0 0.00	0.0	30	Fe 0.02	133	24	74	0			
4/6	Not Sampled																									
5/4	Not Sampled																									
[illegible]/1	Not Sampled																									
7/1-18					214	8.0	14 0.70	8.8 0.72	17 0.74	0.9 0.02	0.0 0.00	100 1.64	15 0.31	9.0 0.25	0.2 0.00	0.10 0.01	0.1	32	Fe 0.01	146	34	71	0			
7/19-8/1					193	7.6	14 0.70	7.5 0.62	15 0.65	0.8 0.02	0.0 0.00	91 1.49	13 0.27	7.2 0.20	0.1 0.00	0.1 0.01	0.0	28	Fe 0.01	131	33	66	0			

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-6

ANALYSES OF SURFACE WATER

[illegible]

[illegible] AT KNIGHTS LANDING [illegible] (continued)

Date and time sampled P S T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
[illegible]																										[illegible]
[illegible]					[illegible]	7.8	14 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	29	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11[illegible] / 1.[illegible]	17 / [illegible]	1[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17 / [illegible]	17 / [illegible]	.6 / [illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.0 / [illegible]	[illegible] / 1.56	19 / [illegible]	13 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.[illegible] / 0.19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10 / [illegible]	[illegible] / 0.00	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 0.52	[illegible]	0.0 / [illegible]	[illegible] / 1.51	11 / 0.23	8.0 / 0.23	.8 / [illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	96 / [illegible]	13 / [illegible]	8.5 / [illegible]	[illegible]	[illegible] / 0.00	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	1[illegible] / [illegible]	[illegible]	.0 / [illegible]	98 / 1.61	[illegible] / [illegible]	10 / [illegible]	1.3 / [illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER NEAR MALLARD SLOUGH ([illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[g]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959	Tidal																									USBR
1/14 1305		56			324				32					50						248	43					
2/11 [illegible]		51			258				22					[illegible]						190	37					
[illegible]		60			395				29					41						[illegible]	[illegible]					
4/14 1255					333				36					50						[illegible]	[illegible]					
5/15 1255		69			2,034				253					476						1,068	54					
7/14 1120					15,294				2,530					4,828						10,824	72					
8/13 1300		72			9,076				1,495					2,932						6,000	72					
9/16 1325		69			4,254				649					1,271						2,684	86					
10/15 1145		69			3,569				536					293						2,008	65					
11/13 0925		58			4,391				644					1,218						2,560	64					
12/16 1315		46			9,941				1,324					2,549						5,388	58					

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS),; San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc (TTL), or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

[illegible]

[illegible]

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
[illegible]	[illegible]																									[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]			[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]			[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]			[illegible]		[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11 / 0.87	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]																			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c [illegible]

d [illegible]

e [illegible]

f [illegible]

g [illegible]

h [illegible]

i [illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT SACRAMENTO (STA. 15)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
[illegible]																										USGS
1/1[illegible]	[illegible]	[illegible]	11.[illegible]	[illegible]	112	7.4[b]	0.84[c]		[illegible] / 0.22		0.0 / 0.00	49 / 0.80		4.5 / 0.13			0.0			73[e]	21	42	2	50	Left Bank Median 62	
[illegible]	27,1[illegible]	[illegible]	[illegible]	[illegible]	12[illegible]	7.2[a]	1.14[c]		6.6 / 0.29		0.0 / 0.00	63 / 1.03		4.5 / 0.13			0.0			85[e]	20	57	5	5		
[illegible]	27,[illegible]	[illegible]	[illegible]	[illegible]	13[illegible]	7.4[a]	1.04[c]		6.3 / 0.27		0.0 / 0.00	67 / 1.10		4.0 / 0.11			0.0			87[e]	21	52	0	10	Maximum 2,400	
4/1 0720	21,1[illegible]	[illegible]	1[illegible].3	98	144	7.[illegible][a]	1.00[c]		6.2 / 0.27		0.0 / 0.00	66 / 1.08		5.2 / 0.15			0.0			94[e]	21	50	0	70	Minimum 0.21	
5/11 0700	11,400	65	9.5	100	195	7.3[a]	15 / 0.75	6.4 / 0.53	16 / 0.70	1.8 / 0.05	0.0 / 0.00	85 / 1.39	13. / 0.27	12 / 0.34	0.0 / 0.00	0.1 / 0.01	0.0	19	Fe 0.02 Al 0.07[d] PO_4 0.15	124[f]	34	64	0	10	Right Bank Median 230	
6/8 0725	7,170	70	7.9	88	203	7.6[a]	1.38[c]		16 / 0.70		0.0 / 0.00	89 / 1.46		12 / 0.34			0.0			132[e]	34	69	0	25		
7/1 0640	7,420*	68	9.6	104	168	7.3[a]	1.12[c]		12 / 0.52		0.0 / 0.00	73 / 1.20		8.6 / 0.24			0.0			110[e]	32	56	0	10	Maximum 7,000	
8/11 0645	12,400*	68	9.3	100	158	7.3[a]	1.14[c]		12 / 0.52		0.0 / 0.00	74 / 1.21		10 / 0.28			0.1			103[e]	31	57	0	35	Minimum 0.62	
9/7 0650	10,800*	74	8.8	102	228	7.3[a]	17 / 0.85	9.4 / 0.77	18 / 0.78	1.6 / 0.04	0.0 / 0.00	109 / 1.79	9.0 / 0.19	13 / 0.37	0.3 / 0.00	0.1 / 0.01	0.0	22	Al 0.06 Cu 0.01[d] PO_4 0.20	144[f]	32	81	0	30		
10/9 1330	8,540*	63	9.4	97	177	7.3[a]	1.36[c]		9.0 / 0.39		0.0 / 0.00	88 / 1.44		8.2 / 0.23			0.0			115[e]	22	68	0	13		
11/2 0740	8,150*	54	9.8	91	180	7.6[a]	1.32[c]		12 / 0.52		0.0 / 0.00	90 / 1.48		7.0 / 0.20			0.1			117[e]	28	66	0	6		
12/7 0745	6,70[illegible]*	47	11.0	102	186	7.3[a]	1.44[c]		12 / 0.52		0.0 / 0.00	90 / 1.48		7.5 / 0.21			0.2			121[e]	27	72	0	35		

* Daily Mean

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc (TTL), or California Department of Water Resources (DWR); as indicated.

TABLE B-4
ANALYSES OF SURFACE WATER

[illegible]

[illegible]

Date and time sampled P S T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1[illegible]9																										[illegible]
[illegible]					182	[illegible]	1[illegible] / [illegible]	[illegible]	[illegible]	1.2 / [illegible]	[illegible].0 / [illegible]	81 / [illegible]	1[illegible] / [illegible]	[illegible] / [illegible].28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
1/[illegible]					[illegible]	7.[illegible]	11 / 0.55	[illegible]	[illegible] / [illegible].12	1.4 / [illegible]	[illegible]	[illegible] / 0.98	13 / 0.27	[illegible] / 0.25	3.7 / [illegible]	[illegible] / [illegible].00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
1/[illegible]1-[illegible]					[illegible]	[illegible]	[illegible] / [illegible].16	[illegible] / 0.1[illegible]	[illegible] / 0.23	[illegible]	[illegible].0 / [illegible].00	42 / [illegible]	7.7 / [illegible]	5.5 / [illegible].16	2.8 / [illegible]	[illegible]	[illegible]	1[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
1/1[illegible]-31					[illegible]	[illegible]	12 / [illegible]	4.[illegible] / [illegible]	[illegible] / [illegible].13	1.[illegible] / [illegible]	[illegible].0 / 0.00	[illegible] / 0.98	9.6 / 0.20	[illegible].5 / 0.16	1.5 / [illegible].02	[illegible].1 / [illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]1-[illegible]					1[illegible]	[illegible]	11 / [illegible]	[illegible]	[illegible]	1.[illegible] / [illegible]	[illegible].0 / [illegible]	6[illegible] / 1.[illegible]	7.[illegible] / [illegible].15	[illegible] / 0.12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]-11					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.[illegible] / [illegible]	[illegible].0 / 0.00	71 / 1.1[illegible]	13 / [illegible].27	6.[illegible] / 0.19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]-1[illegible]					139	[illegible]	1[illegible] / [illegible]	[illegible].1 / [illegible]	[illegible]	1.[illegible] / [illegible]	[illegible].0 / [illegible].10	[illegible] / 1.[illegible]	13 / 0.2[illegible]	6.[illegible] / [illegible]	[illegible]	[illegible].1 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]-21					[illegible]9.[illegible]	7.8	[illegible]	[illegible]	[illegible] / [illegible].19	1.[illegible] / [illegible]	[illegible]	[illegible] / [illegible].86	[illegible] / [illegible].19	[illegible]	1.[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]-2[illegible]					[illegible]	7.[illegible]	[illegible] / [illegible].65	[illegible]	[illegible]	1.4 / [illegible]	[illegible]	[illegible] / 0.95	7.[illegible] / [illegible].15	[illegible]	1.1 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	7.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible].0 / [illegible]	70 / 1.15	1[illegible] / [illegible].21	[illegible] / [illegible].16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					1[illegible]6	7.[illegible]	[illegible]	[illegible]	[illegible] / 0.17	[illegible]	[illegible]	[illegible] / 1.1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					1[illegible]		[illegible]	[illegible]	[illegible]	1.[illegible] / [illegible]	[illegible]	[illegible]	11 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.[illegible] / [illegible].19	1.[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]					267	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11 / [illegible].23	[illegible]	[illegible]	[illegible].1 / [illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}) reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT SACRAMENTO (STA. 15 continued)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH [b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm [f]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform [h] MPN/ml	Analyzed by [i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
4/13-24					147	7.1	14 0.70	4.6 0.38	8.4 0.37	1.5 0.04	0.0 0.00	66 1.08	11 0.23	6.5 0.18	0.5 0.01	0.0 0.00	0.1	21	Fe 0.01	101	25	54	0			
4/25-30					161	7.8	12 0.60	6.8 0.56	11 0.45	1.6 0.04	0.0 0.00	70 1.15	11 0.23	9.0 0.25	0.3 0.00	0.0 0.00	0.1	21	Fe 0.02	107	29	58	1			
5/2-8					190	7.5	14 0.70	7.5 0.62	14 0.61	1.6 0.04	0.0 0.00	80 1.31	16 0.33	10 0.28	0.5 0.01	0.0 0.00	0.1	22	Fe 0.01	125	31	66	0			
5/11-20					205	6.9	16 0.80	7.8 0.64	16 0.70	2.1 0.05	0.0 0.00	92 1.51	13 0.27	13 0.37	0.3 0.00	0.1 0.01	0.1	24	Fe 0.00	137	32	72	0			
5/21-31					213	7.0	16 0.80	8.3 0.68	16 0.70	1.6 0.04	0.0 0.00	96 1.57	15 0.31	13 0.37	0.0 0.00	0.2 0.01	0.1	24	Fe 0.00	141	32	74	0			
6/1-10					224	7.0	17 0.85	8.4 0.69	17 0.74	1.6 0.04	0.0 0.00	98 1.61	18 0.37	14 0.39	0.0 0.00	0.2 0.01	0.1	24	Fe 0.00	148	32	77	0			
6/11-19					215	7.3	15 0.75	8.6 0.71	16 0.70	1.6 0.04	0.0 0.00	92 1.51	11 0.23	14 0.39	0.0 0.00	0.1 0.01	0.1	25	Fe 0.00	134	32	73	0			
6/20-30					198	7.0	14 0.70	7.3 0.60	15 0.65	1.5 0.04	0.0 0.00	82 1.34	13 0.27	12 0.34	0.3 0.00	0.2 0.01	0.1	24	Fe 0.00	127	33	65	0			
7/1-10					179	7.4	12 0.60	7.5 0.62	14 0.61	1.6 0.04	0.0 0.00	78 1.28	10 0.21	11 0.31	0.9 0.01	0.0 0.00	0.0	24	Fe 0.00	119	33	61	3			
7/11-20					181	7.4	13 0.65	6.9 0.57	14 0.61	1.4 0.04	0.0 0.00	78 1.28	9.8 0.20	11 0.31	0.9 0.01	0.0 0.00	0.0	24	Fe 0.00	119	33	61	0			
7/21-31					160	7.2	11 0.55	7.2 0.59	12 0.52	1.4 0.04	0.0 0.00	72 1.18	8.0 0.17	13 0.37	0.3 0.00	0.2 0.01	0.0	22	Fe 0.02	110	31	57	0			
8/1-2					144	7.1	12 0.60	5.4 0.44	12 0.52	1.3 0.03	0.0 0.00	68 1.11	9.0 0.19	8.0 0.23	0.2 0.00	0.1 0.01	0.0	21	Fe 0.00	102	33	52	0			
8/3-9					171	7.1	14 0.70	6.6 0.54	13 0.57	1.5 0.04	0.0 0.00	76 1.25	16 0.33	8.5 0.24	0.8 0.01	0.1 0.01	0.0	25	Fe 0.00	122	31	62	0			
8/10					159	7.4	14 0.70	6.6 0.54	15 0.65	1.3 0.03	0.0 0.00	84 1.38	11 0.23	11 0.31	0.2 0.00	0.1 0.01	0.0	23	Fe 0.00	123	34	62	0			

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT SACRAMENTO (STA. 15 continued)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
8/11-17					176	7.9	14 / 0.7[illegible]	7.1 / 0.5[illegible]	14 / 0.61	1.4 / 0.04	0.0 / 0.00	82 / 1.34	11 / 0.2[illegible]	10 / 0.28	0.4 / 0.01	0.1 / [illegible]	[illegible]	24	Fe 0.10	12[illegible]	[illegible]	64	[illegible]			
8/1[illegible]-31					217	8.[illegible]	14 / 0.70	10 / 0.82	17 / 0.74	1.6 / 0.04	0.0 / 0.00	104 / 1.70	11 / 0.2[illegible]	11 / 0.31	[illegible].4 / 0.01	0.1 / 0.01	[illegible]	25	Fe 0.00	144	32	76	[illegible]			
9/1-10					240	7.1	18 / 0.90	10 / 0.82	19 / 0.83	1.8 / 0.05	0.0 / 0.00	116 / 1.90	19 / 0.40	12 / 0.32	0.2 / 0.00	0.1 / 0.01	1.0	28	Fe [illegible]	165	[illegible]	[illegible]	[illegible]			
9/11-2[illegible]					248	7.4	18 / 0.90	10 / 0.86	19 / 0.83	2.0 / 0.05	0.0 / 0.00	120 / 1.97	13 / 0.27	14 / 0.39	0.3 / 0.00	0.1 / 0.01	0.0	28	Fe 0.[illegible]0	163	31	[illegible]	[illegible]			
9/[illegible]1-[illegible]					211	7.2	17 / 0.85	8.1 / 0.6[illegible]	16 / 0.70	2.0 / 0.05	0.0 / 0.00	90 / 1.48	18 / 0.37	12 / 0.34	0.6 / 0.01	0.1 / 0.01	0.0	27	Fe 0.00	14[illegible]	[illegible]	7[illegible]	2			
1[illegible]/1-1[illegible]					192	6.9	17 / 0.85	7.7 / 0.6[illegible]	13 / 0.5[illegible]	1.8 / 0.05	0.0 / 0.00	93 / 1.52	1[illegible] / 0.21	11 / 0.31	0.2 / 0.00	0.1 / 0.01	0.[illegible]	26	Fe 0.[illegible]	133	[illegible]	[illegible]	[illegible]			
1[illegible]/11-[illegible]					179	7.1	16 / 0.80	7.3 / 0.60	11 / 0.48	1.7 / 0.04	0.0 / 0.00	89 / 1.46	7.0 / 0.15	10 / 0.28	0.0 / 0.00	0.1 / 0.01	0.[illegible]	25	Fe 0.[illegible]0	12[illegible]	[illegible]	[illegible]	[illegible]			
1[illegible]/21-30					182	7.1	1[illegible] / 0.75	8.4 / 0.69	12 / 0.52	1.8 / 0.05	0.0 / 0.00	90 / 1.48	8.[illegible] / 0.17	12 / 0.34	0.2 / 0.00	0.1 / [illegible]	0.1	25	Fe 0.00	[illegible]	26	[illegible]	[illegible]			
11/1-1[illegible]					[illegible]78	7.9	1[illegible] / 0.75	8.[illegible] / 0.7[illegible]	12 / 0.52	1.8 / 0.05	0.0 / 0.00	[illegible] / 1.5[illegible]	7.[illegible] / 0.15	12 / 0.34	0.2 / 0.00	0.1 / 0.01	0.1	2[illegible]	Fe 0.01	[illegible]	[illegible]	7[illegible]	[illegible]			
11/11-2[illegible]					181	7.9	16 / 0.80	8.5 / 0.70	13 / 0.57	1.8 / 0.05	0.0 / 0.00	91 / 1.49	9.0 / 0.19	16 / 0.45	0.2 / 0.00	0.1 / 0.01	[illegible]	2[illegible]	Fe 0.[illegible]0	[illegible]	[illegible]	7[illegible]	[illegible]			
11/21-[illegible]					180	7.8	13 / 0.65	7.5 / 0.62	11 / 0.48	1.3 / 0.03	0.0 / 0.00	88 / 1.44	8.[illegible] / 0.17	6.8 / 0.19	[illegible]	0.[illegible] / [illegible]	[illegible]	25	Fe 0.00	[illegible]	[illegible]	[illegible]	[illegible]			
12/1-9					[illegible]93	6.7	1[illegible] / 0.70	7.6 / 0.6[illegible]	11 / 0.48	1.4 / 0.04	0.0 / 0.00	88 / 1.44	11 / 0.23	5.8 / 0.16	0.[illegible] / 0.00	0.2 / 0.01	[illegible]	27	Fe 0.00	[illegible]	[illegible]	66	[illegible]			
12/11-2[illegible]					190	7.[illegible]	14 / 0.70	8.[illegible] / 0.66	12 / 0.5[illegible]	1.4 / 0.04	0.0 / 0.00	92 / 1.5[illegible]	4.[illegible] / 0.10	8.[illegible] / 0.23	0.1 / 0.00	0.1 / 0.01	[illegible]	25	Fe 0.00	11[illegible]	[illegible]	[illegible]	[illegible]			
12/[illegible]-31					198	6.8	15 / 0.75	7.4 / 0.61	13 / 0.57	1.4 / 0.04	0.0 / 0.00	90 / 1.48	11 / 0.23	8.[illegible] / 0.23	0.6 / 0.01	[illegible] / 0.00	0.1	25	Fe 0.00	126	[illegible]	68	[illegible]			

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT SNODGRASS SLOUGH (STA. 97)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[g]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Tidal																									USBR
1/1? 1?4?					125	6.6	13	4.5	5.3	2.0	0.0	39	13	7.8	1.9						18					
[illegible]					149	7.6	14	5.1	8.7	0.0	0.0	62	13	6.4	0.6					106	[illegible]					
?/17 1??					[illegible]	8.5	7.4	8.7	6.9	2.0	5.1	54	7.2	6.7	[illegible]					[illegible]	21					
?/1? 1???		62			162	7.0	13	6.3	8.5	0.0	0.0	60	21	5.7	0.6					144	24					
5/12 1??		70			223	6.8	16	7.2	15	0.0	0.0	74	30	11	0.6					200	32					
?/15 11??		69			217	7.0	14	8.2	14	0.0	0.0	79	15	17	0.0					134	30					
7/13 1128		72			163	7.3	13	6.0	10	0.0	0.0	60	6.2	9.2	0.6					102	28					
8/11 112?		71			187	7.4	14	5.2	11	1.2	0.0	66	9.6	7.8	1.2					144	29					
9/14 1140		71			260	7.8	16	12	16	0.0	0.0	106	15	15	0.0					156	28					
10/12 1235		68			208	7.6	13	9.6	12	1.6	0.0	82	11	5.7	0.6					176	25					
11/9 1230		58			179	8.1	13	6.1	14	2.0	0.0	84	19	8.5	0.6					120	33					
12/14 1420		53			204	8.5	17	7.4	11	1.6	4.2	79	7.2	7.8	0.0					120	24					

a Field pH.

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO RIVER AT TOLAND LANDING (STA. 15a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959	Tidal																									USBR
1/13 1320					162															132						
2/10 1140		49			152															120						
3/17 1400					197															146						
4/13 1320		63			154															128						
5/18 1830		65			206															176						
6/15 0945		68			482															320						
7/13 1240		72			4,760															3,000						
8/11 1225		71			1,288															720						
9/14 1250		69			318															236						
10/12 1440		67			775															464						
11/9 1345		59			760															408						

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4
ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SACRAMENTO SLOUGH NEAR KNIGHTS LANDING (STA. 14a)

Mineral constituents in parts per million / equivalents per million (each cell: ppm / epm)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/12 1315	1,8[illegible]	[illegible]	[illegible]	[illegible]	270	7.9[b]	19 / 0.95	12 / 1.01	19 / 0.83	1.9 / [illegible]	0.0 / 0.00	133 / 2.18	7.7 / 0.16	16 / 0.45	1.5 / 0.02	0.1 / 0.01	0.0	19		162[f]	20	98	0		Median 23	
2/9 1200	869	46	11.1	85	41[illegible]	7.8[b]	23 / 1.15	16 / 1.28	18 / 0.78	1.7 / 0.04	0.0 / 0.00	166 / 2.72	6.7 / 0.14	17 / 0.48	0.5 / 0.01	0.1 / 0.01	0.1	28		193[f]	24	122	0		Maximum 7,000	
[illegible]	3,[illegible]	[illegible]			253	7.7[b]	18 / 0.90	14 / 1.18	15 / 0.65	1.7 / 0.04	0.0 / 0.00	144 / 2.36	5.8 / 0.12	9.2 / 0.26	0.4 / 0.01	0.1 / 0.01	0.1	26		161[f]	22	104	0		Minimum [illegible]	
4/6 [illegible]	7,840	66	7.7	92	265	7.8[b]	19 / 0.95	13 / 1.10	13 / 0.57	1.6 / 0.04	0.0 / 0.00	129 / 2.11	3.8 / 0.08	15 / 0.42	0.8 / 0.01	0.0 / 0.00	0.0	24		154[f]	21	102	[illegible]			
[illegible]	[illegible]	[illegible]	8.6	92	251	7.4[a]	25 / 1.25	18 / 1.45	22 / 0.96	1.6 / 0.04	0.0 / 0.00	172 / 2.82	12 / 0.25	22 / 0.62	0.0 / 0.00	0.0 / 0.00	0.0	26	Fe 0.07 Al 0.19[d] Zn 0.01 PO_4 0.35	212[f]	21	13[illegible]	0	30		
6/1 0830	[illegible],130	7[illegible]	6.8	76	310	7.4[a]	24 / 1.20	16 / 1.34	19 / 0.83	1.7 / 0.04	0.0 / 0.00	170 / 2.79	11 / 0.23	12 / 0.34	1.1 / 0.02	0.1 / 0.01	0.0	25		194[f]	24	127	0			
7/6 1100	516*	78	[illegible]	7[illegible]	[illegible]	7.0[a]	34 / 1.70	26 / 2.14	46 / 2.00	1.2 / 0.03	0.0 / 0.00	234 / 3.84	9.0 / 0.19	59 / 1.66	1.8 / 0.03	0.1 / 0.01	0.0	36		328[f]	34	192	[illegible]			
8/10 0930	[illegible]*	7[illegible]	[illegible]	7[illegible]	[illegible]	7.1[a]	32 / 1.60	26 / 2.12	50 / 2.18	1.5 / 0.04	0.0 / 0.00	234 / 3.84	26 / 0.54	54 / 1.52	0.4 / 0.01	0.1 / 0.01	0.0	32		337[f]	37	186	0			
9/7 0830	1,240*	72	6.9	78	443	7.4[a]	29 / 1.45	22 / 1.83	34 / 1.48	2.0 / 0.05	0.0 / 0.00	224 / 3.67	8.0 / 0.17	34 / 0.96	0.0 / 0.00	0.2 / 0.01	0.0	30	PO_4 0.40 Al 0.05[d] Cu 0.01 Zn 0.03	269[f]	31	164	0	35		
10/5 1445	158*	66	8.5	91	451	8.0[a]	33 / 1.65	23 / 1.91	32 / 1.39	2.0 / 0.05	0.0 / 0.00	216 / 3.54	17 / 0.35	38 / 1.07	0.7 / 0.01	0.1 / 0.01	0.0	34		286[f]	28	178	1			
11/13	Not Sampled																									
12/4 1245	94*	49	10.0	87	479	7.7[a]	3.60[c]		38 / 1.65		0.0 / 0.00	233 / 3.82		41 / 1.16			0.1			287[e]	31	180	0	13		

* Daily Mean

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (5)

SALT SLOUGH AT SAN LUIS RANCH (STA. 92e)

Mineral constituents in parts per million / equivalents per million (values shown as ppm / epm)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
[illegible]	99	56	1.2	30	1800	[illegible]	74 / 3.69	41 / 3.37	250 / 10.88	6.[illegible] / 0.1[illegible]	[illegible] / 0.00	206 / 3.38	293 / 6.1[illegible]	288 / 8.12	[illegible]	[illegible].2 / [illegible]	1.4	17		[illegible]	60	352	185			
[illegible]	99	[illegible]	[illegible]	69	237[illegible]	6.9	95 / 4.74	55 / 4.5[illegible]	33[illegible] / 14.70	4.[illegible] / 0.10	[illegible].0 / [illegible]	236 / 3.87	461 / 9.60	375 / 10.[illegible]	4.3 / 0.0[illegible]	.4 / 0.02	2.2	1[illegible]		1460	61	462	268			
[illegible]	76	62	8.7	[illegible]8	1[illegible]	[illegible]	77 / 3.84	39 / 3.24	[illegible]34 / 1[illegible].18	4.4 / 0.11	[illegible] / 0.00	192 / 3.15	290 / [illegible]	300 / 8.46	4.3 / 0.07	0.3 / 0.02	1.2	18		[illegible]60	59	352	197			
[illegible]/6	90	64	6.3	66	1320	[illegible].2	62 / 3.[illegible]	[illegible]2 / [illegible].63	157 / 6.83	5.[illegible] / 0.13	[illegible] / 0.00	166 / 2.72	129 / 2.69	246 / 6.93	3.6 / 0.06	[illegible].2 / 0.[illegible]	0.5	24		741	54	286	[illegible]90			
[illegible]	69	67	[illegible]	81	13[illegible]	[illegible].3	69 / 3.44	[illegible] / [illegible].28	1[illegible] / 6.57	3.2 / 0.08	[illegible] / 0.00	174 / 2.85	1[illegible]2 / 1.16	236 / 6.66	5.[illegible] / 0.[illegible]8	.2 / 0.[illegible]	[illegible].6	22	Al [illegible].21 [illegible] [illegible].7[d] Zn [illegible]	748	53	286	143	[illegible]		
[illegible]	126	[illegible]4	5.3	[illegible]	962	7.3	[illegible] / 2.50	24 / 1.98	119 / 5.18	7.2 / 0.18	0.0 / 0.00	167 / 2.74	123 / 2.56	1[illegible]2 / 4.57	2.1 / 0.03	[illegible].3 / 0.02	1.1	27		598	53	224	87			
7/6 [illegible]	99	76	5.8	69	973	7.2	49 / 2.4[illegible]	23 / 1.91	117 / [illegible]	5.6 / 0.14	0.0 / 0.00	163 / 2.67	93 / 1.94	166 / 4.68	1.1 / [illegible]	[illegible] / 0.01	0.3	23		560	53	218	84			
[illegible]	75	[illegible]6	7.4	87	1280	7.1	54 / 2.69	36 / 2.99	156 / 6.79	7.8 / 0.20	[illegible] / 0.00	160 / 2.62	10[illegible] / 2.[illegible]8	272 / 7.6[illegible]	1.[illegible] / 0.0[illegible]	[illegible].3 / 0.02	[illegible].3	[illegible]		[illegible]	54	284	153			
[illegible]	54	7[illegible]	7.2	87	1300	7.1	57 / 2.84	3[illegible] / 2.[illegible]8	163 / 7.09	7.[illegible] / 0.[illegible]8	0.0 / 0.00	186 / 3.05	107 / 2.23	260 / 7.33	4.1 / 0.0[illegible]	[illegible].1 / [illegible]	[illegible].7	[illegible]	Fe [illegible] Al [illegible].1[d] Mn 1.5	747	56	266	113	35		
[illegible]/9	38	[illegible]	1.[illegible]	[illegible]	[illegible]	7.[illegible]	[illegible]	[illegible]	172 / 7.[illegible]	4.8 / 0.12	[illegible] / [illegible]	1[illegible]9 / 3.26	138 / [illegible]	[illegible] / 7.15	[illegible]	[illegible] / 0.[illegible]	[illegible].5	[illegible]		788	56	287	124			
[illegible]	24	[illegible]6	7.2	68	1[illegible]	7.2	[illegible].17 g		[illegible] / 11.74		0.0 / 0.00	236 / 3.[illegible]		425 / 11.9[illegible]			[illegible].8			1,160	62	366	172	90		
[illegible]	62	[illegible]	[illegible].6	7[illegible]	[illegible]	7.1	7.52 g		2[illegible]7 / 1[illegible].48		[illegible] / 0.00	[illegible]4 / 4.00	25[illegible] / 5.2[illegible]	36[illegible] / 10.15			1.1			[illegible]1[illegible]	62	[illegible]76	176	50		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER AT ANTIOCH (STA. 28)

Mineral constituents in parts per million / equivalents per million

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959	Tidal																									USGS
1/13 1540		54	9.7	90	333	7.2[a]	1.72[c]		30 1.30		0.0 0.00	76 1.25		46 1.30			0.0			183[e]	43	86	24	1	Median 62.	
2/10 1600		50	9.7	85	318	7.2[a]	1.80[c]		31 1.35		0.0 0.00	71 1.16		41 1.16			0.0			175[e]	43	90	33	70	Maximum 7,000.	
3/11 1430		59	8.6	84	405	7.3[a]	2.16[c]		35 1.52		0.0 0.00	83 1.36		48 1.35			0.1			223[e]	41	108	40	25	Minimum 2.3	
4/1 1320		60	9.0	90	280	7.1[a]	1.58[c]		23 1.00		0.0 0.00	73 1.20		35 0.99			0.2			154[e]	39	79	19	70		
5/12 1330		69	7.3	80	809	7.2[a]	15 0.75	20 1.65	108 4.70	5.6 0.14	0.0 0.00	72 1.18	42 0.87	190 5.36	0.6 0.01	0.1 0.01	0.1	18	Al 0.10 PO4 0.15 [d]	434[f]	65	120	61	35		
6/8 1240		69	8.1	89	946	7.5[a]	2.82[c]		125 5.44		0.0 0.00	85 1.39		230 6.49			0.1			520[e]	66	141	71	40		
7/1 1215		73	8.3	95	6,010	7.5[a]	13.40[c]		1,050 45.68		0.0 0.00	93 1.52		1,760 49.63			0.5			2,300[e]	77	670	594	20		
8/10 1245		74			5,140	7.9[b]	11.28[c]		834 36.28		0.0 0.00	88 1.44		1,560 43.99			0.4			2,830[e]	76	564	492	85		
9/7 1300		75	8.3	97	3,250	7.4[a]	34 1.70	66 5.40	542 23.58	28 0.72	0.0 0.00	90 1.48	150 3.12	930 26.23	1.6 0.03	0.5 0.03	0.3	16	Fe 0.12 Al 0.23 [d] PO4 0.15 Cu 0.01	1,810[f]	75	355	281	45		
10/5 1400		66	8.8	94	1,590	7.4[a]	4.08[c]		233 10.14		0.0 0.00	105 1.72		405 11.42			0.2			875[e]	71	204	118	55		
11/3 1110		59	7.9	78	1,570	7.3[a]	3.96[c]		229 9.96		0.0 0.00	99 1.62		390 11.00			0.1			865[e]	72	198	117	50		
12/7 1400		55	8.4	79	3,410	7.3[a]	7.90[c]		535 23.27		0.0 0.00	94 1.54		1,050 29.61			0.3			1,880[e]	75	395	318	40		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);, San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR); as indicated.

TABLE B-[illegible]

ANALYSES OF SURFACE WATER

[illegible] VALLEY REGION (NO. [illegible])

SAN JOAQUIN RIVER AT [illegible] BRIDGE [illegible]

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[d]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
[illegible]	[illegible]																									[illegible]
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]				[illegible]					[illegible]						[illegible]	[illegible]					

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

SAN JOAQUIN RIVER AT CROWS LANDING BRIDGE (STA. 26b)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[g]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USBR
1/15 1205		56			948				122					129						736	56					
2/17 [illegible]35		54			786				94					114						502	52					
[illegible]/16 1130		62			1,665				211					274						978	55					
4/14 1200		68			1,195				69					212						760	25					
5/13 1225		70			1,228				143					188						772	50					
6/16 1310		68			949				52					165						616	24					
7/16 1115		76			1,379				155					244						924	49					
8/11 1210		42			1,108				133					191						716	52					
9/16 1225		63			1,265				154					212						824	53					
10/14 1250		70			1,288				199					214						792	70					

Mineral constituents in parts per million / equivalents per million

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

[illegible] (No. [illegible])

SAN JOAQUIN RIVER NEAR [illegible] (1951, [illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[d]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
Mineral constituents in parts per million / equivalents per million																										
1951																										[illegible]
1/16		44			[illegible]	7.[illegible]	[illegible]	7.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		74			660	8.3	[illegible]	1[illegible]	7[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	7.[illegible]	32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
4/2[illegible] 09[illegible]		[illegible]			564	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	86	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	7.4	[illegible]	[illegible]	[illegible]	2.7	[illegible]	[illegible]	38	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		66			554	7.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.6					[illegible]	[illegible]					
[illegible]		69			[illegible]	7.[illegible]	[illegible]	[illegible]	67	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]					1,021	7.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	79	71	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]/17		[illegible]			[illegible]	7.2	[illegible]	[illegible]	65	[illegible]	[illegible]	[illegible]	52	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			618	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44	137	.6					[illegible]	[illegible]					
[illegible]		[illegible]			779	8.[illegible]	[illegible]	[illegible]	78	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
12/1[illegible]					911	7.6	41	21	9[illegible]	[illegible]	[illegible]	[illegible]	19	[illegible]	[illegible]					[illegible]	[illegible]					

a Field pH

b Laboratory pH

c [illegible]

d [illegible] reported here as [illegible] except as shown

e [illegible] TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h [illegible]

i [illegible]

TABLE B-4
ANALYSES OF SURFACE WATER
CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE (STA. 25c)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
8/4 1300	76	82	10.9	137	1620	8.3	7.04[c]		225 9.79		0.0 0.00	202 3.31		472 13.31			0.5			1060[e]	58	352	186	20	Mean 6.2	
9/10 1230	77	80	8.5	104	1690	8.2	66 3.29	42 3.43	208 9.05	7.0 0.18	0.0 0.00	212 3.47	192 4.00	298 8.40	1.9 0.03	0.2 0.01	0.7	21	Al 0.16 PO_4 0.55 d	941[f]	57	336	162	30	Maximum >7,000.	
10/8 1300	38	68	9.1	99	2800	8.0	11.60[c]		369 16.05		0.0 0.00	248 4.06		640 18.05			1.0			1630[e]	58	580	377	20	Minimum 0.23	
11/5 1200	26	58	11.7	114	3360	7.3	13.20[c]		499 21.71		0.0 0.00	250 4.10	376 7.83	732 20.64			0.8			1960[e]	62	660	455	20		
12/10 1230	66	47	12.4	105	2190	7.7	8.38[c]		304 13.22		0.0 0.00	246 4.03	266 5.54	445 12.55			1.0			1280[e]	61	419	217	30		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE (STA. 25c)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO3)	Bicarbonate (HCO3)	Sulfate (SO4)	Chloride (Cl)	Nitrate (NO3)	Fluoride (F)	Boron (B)	Silica (SiO2)	Other constituents[d]	Total dissolved solids in ppm[c]	Per cent sodium	Hardness as CaCO3 Total ppm	Hardness as CaCO3 N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Average Daily Mean																									USGS
1/1-11	122				1,840	7.4	74 / 3.69	42 / 3.47	252 / 10.96	5.0 / 0.13	0.0 / 0.00	236 / 3.87	222 / 4.62	335 / 9.45	5.4 / 0.09	0.2 / 0.01	0.7	22	Fe 0.00	1,140	60	358	164			
1/12-18	296				1,070	7.1	47 / 2.35	25 / 2.03	144 / 6.26	6.8 / 0.17	0.0 / 0.00	208 / 3.41	133 / 2.77	150 / 4.23	1.9 / 0.03	0.3 / 0.02	0.6	21	Fe 0.01	645	58	219	48			
1/19-31, 2/1-9					1,760	7.3	70 / 3.49	42 / 3.43	250 / 10.88	8.0 / 0.20	0.0 / 0.00	236 / 3.87	285 / 5.93	277 / 7.81	5.3 / 0.09	0.3 / 0.02	1.2	19	Fe 0.00	1,110	60	346	152			
2/10-13	183				1,930	7.4	80 / 3.99	44 / 3.63	256 / 11.14	7.5 / 0.19	0.0 / 0.00	236 / 3.87	313 / 6.52	306 / 8.63	5.1 / 0.08	0.4 / 0.02	1.6	20	Fe 0.01	1,230	59	381	187			
2/14-28	397				1,010	7.1	44 / 2.20	24 / 1.96	123 / 5.35	4.8 / 0.12	0.0 / 0.00	160 / 2.62	137 / 2.85	144 / 4.06	4.8 / 0.08	0.3 / 0.02	0.9	12	Fe 0.02	612	56	208	77			
3/1-12	186				1,750	7.2	76 / 3.79	40 / 3.33	228 / 9.92	6.4 / 0.16	0.0 / 0.00	217 / 3.56	228 / 4.75	301 / 8.49	4.0 / 0.06	0.3 / 0.02	1.1	22	Fe 0.00	[illegible]	58	356	178			
3/13-25	134				1,840	7.4	81 / 4.04	41 / 3.40	233 / 10.14	8.4 / 0.21	0.0 / 0.00	207 / 3.39	200 / 4.16	349 / 9.84	3.7 / 0.06	0.3 / 0.02	0.8	19	Fe 0.00	1,190	57	372	202			
3/26-31, 4/1-5	152				1,590	7.2	70 / 3.49	37 / 3.05	191 / 8.31	6.0 / 0.15	0.0 / 0.00	191 / 3.13	148 / 3.08	313 / 8.83	2.7 / 0.04	0.3 / 0.02	0.5	23	Fe 0.01	980	55	327	170			
4/6-18	313				1,430	7.3	66 / 3.29	33 / 2.69	169 / 7.35	5.6 / 0.14	0.0 / 0.00	190 / 3.11	124 / 2.58	274 / 7.73	2.0 / 0.03	0.3 / 0.02	0.4	23	Fe 0.04	874	55	[illegible]	143			
4/19-26	149				1,500	7.3	68 / 3.39	35 / 2.91	186 / 8.09	8.0 / 0.20	0.0 / 0.00	190 / 3.11	150 / 3.12	295 / 8.32	3.2 / 0.05	0.1 / [illegible]	0.5	18	Fe 0.00	916	55	315	159			
4/27-30	550				547	7.0	30 / 1.50	13 / 1.06	58 / 2.52	5.0 / 0.13	0.0 / 0.00	127 / 2.08	38 / 0.79	79 / 2.23	2.3 / 0.04	0.8 / [illegible]	0.2	14	Fe 0.09	352	48	128	24			
5/1-4	249				898	7.3	47 / 2.35	21 / 1.73	115 / 5.00	5.6 / 0.14	0.0 / 0.00	164 / 2.69	98 / 2.04	145 / 4.09	1.1 / 0.02	0.1 / 0.01	0.3	32	Fe 0.00	546	54	204	70			
5/5-15	190				1,170	7.2	57 / 2.84	27 / 2.24	149 / 6.48	5.8 / 0.15	0.0 / 0.00	186 / 3.05	134 / 2.79	199 / 5.61	2.9 / 0.04	0.0 / 0.00	0.4	29	Fe 0.00	709	59	254	101			
5/16-31	220				951	8.1	50 / 2.50	18 / 1.46	127 / 5.52	5.8 / 0.15	0.0 / 0.00	176 / 2.88	113 / 2.35	150 / 4.23	1.8 / 0.03	0.1 / [illegible]	0.4	27	Fe 0.00	578	57	198	[illegible]			

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

[illegible]

[illegible] FREMONT BRIDGE (STA. 25c continued)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[g]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1[illegible]	Average Daily Mean																									[illegible]
[illegible]	217				1,[illegible]	7.[illegible]	[illegible] / 2.5[illegible]	[illegible] / [illegible].90	126 / 5.4[illegible]	5.1 / [illegible].14	0.0 / 0.00	181 / 2.97	120 / 2.50	160 / 4.51	[illegible].5 / 0.04	[illegible].2 / 0.01	[illegible].4	27	Fe [illegible].00	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]1-[illegible]	156				1,[illegible]	7.1	62 / 3.[illegible]9	28 / 2.27	158 / [illegible]	5.4 / 0.14	0.0 / 0.00	192 / 3.15	123 / 2.56	220 / 6.20	3.1 / 0.05	.1 / 0.01	0.5	28	Fe 0.00	[illegible]	[illegible]	[illegible]	111			
[illegible]	123				1,440	7.3	6[illegible] / 3.44	[illegible]4 / 1.96	205 / 8.92	7.2 / 0.15	[illegible].0 / [illegible]	2[illegible]3 / 3.[illegible]	176 / 3.66	270 / 7.61	2.8 / 0.05	0.0 / 0.00	0.5	27	Fe 0.00	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]-9	132				1,27[illegible]	7.4	59 / 2.94	23 / 1.92	178 / 7.74	[illegible].2 / [illegible]	[illegible].0 / 0.00	196 / 3.21	133 / 2.77	240 / 6.77	1.6 / 0.0[illegible]	.4 / 0.02	[illegible].4	37	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]2			
[illegible]-10	94				1,50[illegible]	7.[illegible]	68 / 3.3[illegible]	33 / 2.69	211 / 9.18	3.6 / 0.09	.0 / 0.00	198 / 3.25	149 / 3.10	302 / 8.52	1.8 / 0.03	0.3 / 0.02	[illegible].4	36	Fe 0.14	[illegible]	[illegible]	[illegible]	[illegible]			
7/17-31, 8/1-4	73				1,740	7.7	76 / 3.79	39 / 3.17	246 / 10.70	4.0 / 0.10	0.0 / 0.00	208 / 3.41	170 / 3.5[illegible]	362 / 10.21	5.2 / 0.08	0.3 / 0.02	0.5	37	Fe 0.[illegible]2	1,[illegible]	[illegible]	[illegible]	1[illegible]			
8/[illegible]-12	102				1,[illegible]	7.5	[illegible]5 / 3.24	32 / 2.62	[illegible]22 / 9.66	[illegible] / 0.12	0.0 / 0.00	190 / 3.11	134 / 2.79	333 / 9.39	3.3 / 0.05	[illegible].3 / 0.02	0.4	31	Fe [illegible].04	[illegible]	[illegible]	[illegible]	137			
8/13-19	78				1,670	7.[illegible]	70 / 3.49	43 / 3.51	214 / 9.31	7.6 / 0.19	[illegible].0 / 0.00	201 / 3.29	153 / 3.19	365 / 10.29	4.1 / 0.07	0.3 / 0.02	0.4	29	Fe [illegible].03	1,[illegible]	[illegible]	[illegible]	1[illegible]			
8/2[illegible]-27	93				1,4[illegible]	7.3	70 / 3.49	27 / 2.21	206 / 8.96	4.4 / 0.11	0.0 / 0.00	191 / 3.13	131 / 2.73	312 / 8.80	2.4 / 0.04	0.3 / 0.02	[illegible].4	27	Fe 0.01	[illegible]	[illegible]	[illegible]	[illegible]			
8/[illegible]-31	73				1,690	8.2	73 / 3.64	37 / 3.06	240 / 10.44	7.2 / 0.18	0.0 / 0.0[illegible]	195 / 3.20	154 / 3.21	370 / 10.43	2.3 / 0.04	0.3 / 0.02	[illegible].5	25	Fe [illegible].01	1,0[illegible]	[illegible]	[illegible]	175			
9/1-[illegible]	100				1,410	8.[illegible]	[illegible]1 / 3.04	36 / 2.9[illegible]	173 / 7.53	7.6 / 0.19	0.0 / 0.00	18[illegible] / 3.[illegible]5	131 / 2.73	290 / 8.18	2.9 / 0.05	0.2 / 0.01	0.[illegible]	[illegible]	Fe 0.00	[illegible]	[illegible]	[illegible]	147			
[illegible]/1[illegible]-1[illegible]	63				1,790	7.6	[illegible] / 4.19	41 / 3.41	2[illegible] / 10.[illegible]1	[illegible] / 0.[illegible]	[illegible].0 / 0.00	[illegible]07 / 3.39	135 / 2.81	410 / 11.56	3.3 / 0.05	0.2 / 0.01	[illegible]	[illegible]	Fe [illegible].00	1,[illegible]	[illegible]	3[illegible]	1[illegible]			
9/2[illegible]-30, 10/1-2	121				1,1[illegible]	7.7	[illegible]5 / 2.75	31 / 2.55	146 / 6.35	7.2 / 0.18	0.0 / 0.00	176 / 2.88	111 / 2.31	225 / 6.34	2.3 / 0.04	0.2 / 0.01	[illegible].2	25	Fe 0.00	[illegible]	[illegible]	2[illegible]	121			
10/3-17	44				1,960	7.[illegible]	84 / 4.19	4[illegible] / 4.01	257 / 11.18	7.2 / 0.15	0.0 / 0.00	220 / 3.61	194 / 4.04	415 / 11.70	4.0 / 0.06	0.2 / 0.01	0.6	[illegible]2	Fe [illegible].00	1,1[illegible]	[illegible]7	4[illegible]	[illegible]			

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);, San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

[illegible]ENTRAL VALLEY RE[illegible]ION (NO. [illegible])

SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE ([illegible]) continued

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
[illegible]	Average Daily Mean																									[illegible]
[illegible]/18-[illegible]	[illegible]				[illegible]	[illegible]	124 / [illegible]	66 / [illegible].41	37 / [illegible].31	[illegible]	[illegible]	236 / [illegible]	[illegible]	[illegible]	[illegible]	.2 / [illegible]	.6	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

Mineral constituents in parts per million / equivalents per million.

[illegible footnotes a–i]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER AT FRIANT (STA. 24)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/15 0830	175	50	9.7	85	44.1	6.5	0.24[c]		2.9 / 0.13		0.0 / 0.00	16 / 0.26		4.8 / 0.14			0.0			35[e]	35	12	0	10	Median 23.	
2/3 1520	180	53	10.3	94	43.4	6.8	0.24[c]		3.7 / 0.16		0.0 / 0.00	16 / 0.26		4.0 / 0.11			0.0			35[e]	40	12	0	2	Maximum 620.	
3/10 0730	186	46	11.0	92	56.6	6.8	0.30[c]		4.5 / 0.20		0.0 / 0.00	20 / 0.33		6.0 / 0.17			0.1			46[e]	40	15	0	6	Minimum 0.23	
4/7 0645	108	47	10.4	88	46.6	6.8	0.34[c]		3.2 / 0.14		0.0 / 0.00	18 / 0.30		4.5 / 0.13			0.0			38[e]	29	17	2	5		
5/6 0640	137	47	10.9	92	45.9	6.8	4.8 / 0.24	1.0 / 0.08	3.5 / 0.15	0.6 / 0.02	0.0 / 0.00	18 / 0.30	3.8 / 0.08	4.0 / 0.11	0.0 / 0.00	0.0 / 0.00	0.0	10	Fe 0.09 Al 0.10[d] PO_4 0.00	37[f]	31	16	1	7		
6/3 1535	133	60	11.4	124	44.0	7.7	0.26[c]		4.1 / 0.18		0.0 / 0.00	16 / 0.26		4.0 / 0.11			0.0			35[e]	41	13	0	6		
7/8 0745	181	48	11.2	96	44.8	7.0	0.26[c]		3.9 / 0.17		0.0 / 0.00	18 / 0.30		3.2 / 0.09			0.0			36[e]	40	13	0	3		
8/6 0635	175	48	10.5	90	44.4	6.8	0.25[c]		3.6 / 0.16		0.0 / 0.00	18 / 0.30		2.5 / 0.07			0.0			36[e]	39	12	0	5		
9/	Sample Broken in Transit																									
10/7 1600	148	48	10.6	91	72.2	6.8	0.48[c]		6.6 / 0.29		0.0 / 0.00	32 / 0.52		7.5 / 0.21			0.0			58[e]	38	24	0	2		
11/4 1700	106	51	10.9	97	45.0	6.8	0.24[c]		3.9 / 0.17		0.0 / 0.00	16 / 0.26		4.0 / 0.11			0.0			36[e]	41	12	0	6		
12/9 1545	78	51	11.0	98	50.3	6.9	0.32[c]		4.4 / 0.19		0.0 / 0.00	15 / 0.25		2.5 / 0.07			0.0			40[e]	37	16	4	2		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-[illegible]

ANALYSES OF SURFACE WATER

[illegible]ENTRAL VALLEY REGION (NO. [illegible])

[illegible]N JOAQUIN RIVER [illegible] GARWOOD BRIDGE ([illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
[illegible]	Tidal																									[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		54 / 2.[illegible]		0.[illegible] / 0.00	10[illegible] / 1.7[illegible]		[illegible] / 2.2[illegible]			[illegible]			292[e]	[illegible]	[illegible]	[illegible]	10	Median [illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		9[illegible] / 4.[illegible]		0.[illegible] / 0.00	[illegible]		1[illegible] / [illegible].10			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		68 / [illegible]		0.[illegible] / 0.00	[illegible] / 1.[illegible]		27 / [illegible].74			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]	Minimum [illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		0 / 0.00	[illegible]		114 / [illegible]			[illegible]			[illegible]08[e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.[illegible]	[illegible]	90 / [illegible]	[illegible] / 0.1	0.[illegible] / 0.00	[illegible]	[illegible]	[illegible]	4.7 / 0.08	[illegible]	[illegible]	[illegible]	Al [illegible].22 [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible].1	[illegible]		[illegible] / [illegible].00		[illegible] / [illegible].00	17[illegible]		140 / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	4.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		91 / [illegible]		0.[illegible] / [illegible].00	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		0.[illegible] / [illegible].00	164 / [illegible]		[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.27	100 / 4.[illegible]	[illegible] / 0.[illegible]	[illegible] / [illegible].00	[illegible] / [illegible].21	26 / 0.[illegible]	1[illegible] / 4.29	[illegible] / [illegible].01	0.[illegible] / [illegible]	[illegible]	1[illegible]	Al [illegible] [illegible] 1.6	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	80[illegible]	[illegible]	[illegible]		100 / 4.[illegible]		[illegible] / [illegible].00	187 / [illegible].06		1[illegible] / [illegible].34			0.1			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
11[illegible]		[illegible]	[illegible]	104	8[illegible]	[illegible]	[illegible]		[illegible] / [illegible]		[illegible] / 0.00	[illegible]		14[illegible] / [illegible]			[illegible]			[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
1[illegible] 11		[illegible]			[illegible]	[illegible]	[illegible]		[illegible] / [illegible].00		0.[illegible] / [illegible].00	14[illegible]		[illegible]			[illegible]			[illegible]40[e]	[illegible]	[illegible]	6[illegible]	30		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr[+6]), reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER NEAR GRAYSON (STA. 2)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/20 1140	960	50	7.2	63	1,030	7.9	4.52[c]		145 / 6.31		0.0 / 0.00	226 / 3.70		160 / 4.51						612[e]	58	226	41	60	Median 130.	
2/10 1100	660	52	9.3	84	1,460	8.1	6.02[c]		220 / 9.57		0.0 / 0.00	222 / 3.64		250 / 7.05			0.8			867[e]	61	301	119	0	Maximum 2,400	
3/11 1150	665	60	8.8	88	1,660	8.4	6.65[c]		215 / 9.35		0.0 / 0.00	234 / 3.84		277 / 7.81			0.7			986[e]	58	333	141	20	Minimum 2.3	
4/14 1410	440	70	10.9	121	1,340	8.4	5.84[c]		172 / 7.48		0.0 / 0.00	208 / 3.41		218 / 6.15			0.5			796[e]	56	292	121	35		
5/11 1330	525	75	12.4	145	1,310	8.4	72 / 3.59	26 / 2.17	161 / 7.00	4.8 / 0.12	0.0 / 0.00	216 / 3.54	159 / 3.31	220 / 6.20	1.0 / 0.02	0.1 / 0.01	0.4	23	Al 0.16 PO_4 0.45 [d]	773[f]	54	288	111	40		
6/8 1240	340	74	11.0	127	1,280	8.5	5.66[c]		167 / 7.26		0.0 / 0.00	214 / 3.51		228 / 6.43			0.5			760[e]	56	283	8	13		
7/30 1345	130	80	12.6	124	1,420	8.1	62 / 3.09	47 / 3.87	174 / 7.57	5.2 / 0.13	0.0 / 0.00	248 / 4.06	164 / 3.41	235 / 6.63	1.6 / 0.03	0.2 / 0.01	0.5	22		844[f]	52	348	145			
8/	Not Sampled																									
9/	Sample broken in transit																									
10/9 1040	385	68	9.2	100	1,070	8.2	4.60[c]		134 / 5.83		0.0 / 0.00	178 / 2.92		181 / 5.10			0.4			636[e]	56	230	84	15		
11/14 1445	315	59	9.0	88	1,380	8.0	62 / 3.09	36 / 2.99	190 / 8.26		0.0 / 0.00	230 / 3.77		225 / 6.34			0.4			820[e]	58	304	115	20		
12/16 1210	345	49	9.9	86	1,550	8.1	6.66[c]		211 / 9.18		0.0 / 0.00	220 / 3.61		280 / 7.90			0.6			921[e]	58	333	153	10		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER AT [illegible] FERRY BRIDGE (STA. 25b)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										[illegible]
1/1[illegible] 143[illegible]	67[illegible]	59	7.8	77	1,[illegible]	[illegible].1	[illegible]0 / 2.[illegible]	[illegible]4 / 2.00	154 / 6.70	4.2 / 0.11	0.0 / 0.00	[illegible] / 3.[illegible]1	118 / [illegible].46	161 / 4.54	[illegible] / 0.0[illegible]	0.[illegible] / 0.0	0.5	19		[illegible][f]	[illegible]	[illegible]	[illegible]		Median [illegible]	
[illegible]/2 1300	491	[illegible]	10.6	94	[illegible],160	7.1	92 / 4.59	41 / 3.4[illegible]	328 / 14.[illegible]	4.0 / .10	0.0 / 0.00	269 / 4.41	359 / 7.47	349 / 9.84	1.[illegible] / 0.[illegible]2	0.[illegible] / 0.02	1.[illegible]	14		1,[illegible][f]	[illegible]	3[illegible]	[illegible]		Maximum [illegible]	
3/9 1115	4[illegible]6	60	9.[illegible]	9[illegible]	1,[illegible]20	7.9	48 / [illegible].40	[illegible]9 / 2.36	163 / 7.09	3.2 / 0.08	0.0 / 0.[illegible]	18[illegible] / 2.98	159 / 3.[illegible]1	197 / 5.56	4.9 / 0.[illegible]	0.[illegible] / [illegible].02	0.5	<5		[illegible][f]	[illegible]	<30	0[illegible]		Minimum [illegible]	
4/6 [illegible]15	39[illegible]	67	8.9	96	1,290	7.9	55 / 2.74	3[illegible] / 2.50	1[illegible]2 / 6.61	[illegible].8 / [illegible]	0.[illegible] / 0.00	163 / 2.67	150 / 3.[illegible]	[illegible] / 6.[illegible]	[illegible].4 / [illegible]	[illegible] / 0.01	[illegible].4	[illegible]		[illegible][f]	[illegible]	[illegible]	128			
5/4 1145	4[illegible]4	65	[illegible].8	103	1,180	8.[illegible]	[illegible] / [illegible].50	30 / [illegible].46	[illegible] / 6.00	[illegible].4 / [illegible]	[illegible] / 0.00	171 / [illegible].80	[illegible]7 / [illegible].64	[illegible] / 5.78	1.4 / [illegible]	[illegible].1 / 0.[illegible]1	[illegible]	19	Fe 0.07 Al 0.29 [d] PO_4 0.00	[illegible][f]	5[illegible]	[illegible]	[illegible]	[illegible]		
6/1 1[illegible]15	464	[illegible]	[illegible]	9[illegible]	[illegible]	7.[illegible]	[illegible] / 1.[illegible]	14 / 1.18	75 / [illegible].26	4.1 / 0.10	[illegible].0 / 0.00	14[illegible] / [illegible].[illegible]3	69 / 1.44	[illegible] / [illegible].[illegible]1	[illegible] / [illegible]	[illegible] / [illegible]	[illegible].2	[illegible]		[illegible][f]	[illegible]	[illegible]9	[illegible]			
7/[illegible] [illegible]	[illegible]4[illegible]	7[illegible]	[illegible]	[illegible]	956	[illegible].1	[illegible] / 2.[illegible]	[illegible] / 1.82	[illegible]4 / 5.[illegible]9	6.[illegible] / .15	4 / [illegible].13	1[illegible] / [illegible]	100 / [illegible].21	157 / 4.4[illegible]	0.0 / .00	[illegible].4 / [illegible]	0.2	[illegible]	Tot. alk. [illegible]	[illegible][f]	[illegible]	[illegible]	[illegible]			
8/[illegible]4 1[illegible]	16[illegible]	78	8.[illegible]	100	1,19[illegible]	[illegible].[illegible]	[illegible]1 / 2.54	26 / [illegible].14	153 / 6.66	5.0 / 0.13	[illegible] / [illegible].00	164 / [illegible].69	1[illegible] / 2.[illegible]9	[illegible]18 / 6.1[illegible]	[illegible].7 / [illegible].04	0.[illegible] / 0.0[illegible]	0.4	[illegible]		[illegible]00[f]	[illegible]	[illegible]	100			
9/[illegible] 1[illegible]15	166	77	8.2	98	1,[illegible]	8.[illegible]	67 / 3.34	4[illegible] / 3.44	229 / 9.96	4.[illegible] / 0.1[illegible]	[illegible] / [illegible].00	213 / [illegible]	[illegible]20 / 4.58	304 / 8.57	[illegible].7 / 0.[illegible]	[illegible].4 / 0.02	0.7	20	Al 0.10 [illegible] [illegible] [d]	[illegible][f]	59	[illegible]	[illegible]	[illegible]		
10/8 1415	1[illegible]	68	8.4	[illegible]	1,5[illegible]	7.[illegible]	61 / 3.04	39 / 3.18	194 / 8.44	4.0 / 0.10	[illegible].0 / 0.00	[illegible]0 / 3.11	[illegible] / 3.9[illegible]	2[illegible] / 7.[illegible]1	[illegible] / [illegible]	[illegible] / 0.01	[illegible]	[illegible]		[illegible][f]	[illegible]	[illegible]1	1[illegible]			
11/[illegible] 1[illegible]	[illegible]	[illegible]	9.9	94	[illegible],060	7.[illegible]	8.08[c]		[illegible]5 / 1[illegible].8[illegible]		[illegible] / 0.0[illegible]	[illegible] / [illegible].2[illegible]	[illegible] / [illegible]	3[illegible] / [illegible].94			0.7			1,[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
1[illegible] 1[illegible]	[illegible]	[illegible]	[illegible]	104	[illegible],160	7.7	8.42[c]		[illegible] / 14.[illegible]6		[illegible] / [illegible]	[illegible] / [illegible]		[illegible] / 1[illegible]			0.8			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

SAN JOAQUIN RIVER AT JERSEY POINT ([illegible])

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen		Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total[g] dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$		Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
			ppm	%Sat			Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents			Total ppm	N C ppm			
1959	Tidal																									USBR
1/14 1440		53			304															268						
2/9 1305		49			317															222						
[illegible]		57			321															212						
4/13 1305		[illegible]			183															[illegible]						
5/14 1035		66			293															252						
6/17 1230		70			484															304						
7/13 0930		75			2,820															1,692						
8/10 0930					2,324															1,308						
9/15 0955		68			406															272						
10/16 0930		68			288															236						
11/12 1310		59			342															208						

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);, San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE (STA. 26a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/20 1230	1,930	52	6.4	58	767	7.8	3.32[c]		100 / 4.35		0.0 / 0.00	149 / 2.44		119 / 3.36						428[e]	57	166	44	40	Median 620	
2/10 1150	1,895	52	8.7	79	737	7.9	2.96[c]		87 / 3.78		0.0 / 0.00	110 / 1.80		120 / 3.38			0.3			411[e]	56	148	58	[illegible]	Maximum 7,000	
3/11 1115	1,680		9.1		860	7.9	3.58[c]		96 / 4.18		0.0 / 0.00	134 / 2.20		146 / 4.12			0.3			480[e]	54	179	69	8	Minimum [illegible]	
4/14 1500	650	71	9.4	106	1,040	8.4	4.60[c]		114 / 4.96		0.0 / 0.00	172 / 2.82		195 / 5.50			0.4			580[e]	52	[illegible]	89	30		
5/11 1420	785	75	12.3	144	1,110	8.5	50 / 2.50	28 / 2.30	131 / 5.70	6.6 / 0.17	0.0 / 0.00	185 / 3.03	82 / 1.71	210 / 5.92	1.3 / 0.02	0.1 / 0.01	0.3	29	Al 0.13 PO_4 [illegible][d]	629[f]	53	[illegible]	88	30		
6/8 1100	532	74	9.7	112	1,170	8.4	5.16[c]		135 / 5.87		0.0 / 0.00	188 / 3.08		240 / 6.77			0.2			613[e]	53	258	[illegible]	[illegible]		
7/30 1315	235	81	13.9	173	1,300	8.3	67 / 3.34	27 / 2.18	157 / 6.83	7.2 / 0.18	0.0 / 0.00	186 / 3.05	38 / 0.79	295 / 8.32	2.2 / 0.04	0.2 / 0.01	0.4	34		720[f]	54	[illegible]	123			
8/	Not sampled																									
9/[illegible] 1600	435	76	11.7	138	1,170	8.4	62 / 3.09	28 / 2.33	146 / 6.35	7.4 / 0.19	0.0 / 0.00	195 / 3.20	67 / 1.39	262 / 7.39	3.6 / 0.06	0.2 / 0.01	0.3	33	Cu 0.02 Al 0.03 PO_4 0.50[d]	704[f]	53	271	[illegible]	[illegible]		
10/9 1015	655	69	7.8	87	1,180	8.0	5.12[c]		153 / 6.66		0.0 / 0.00	196 / 3.21		227 / 6.40			0.4			650[e]	57	256	95	[illegible]		
11/14 1410	900	59	9.2	[illegible]	747	7.8	38 / 1.90	18 / 1.44	90 / 3.92		0.0 / 0.00	123 / 2.02		132 / 3.72			[illegible]			417[e]	[illegible]	[illegible]	65	[illegible]		
12/16 1135	1,240	49	9.8	85	607	7.5	[illegible][c]		65 / 2.83		0.0 / 0.00	95 / 1.56		104 / 2.93			[illegible]			338[e]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); [illegible]; Metropolitan Water District of Southern California (MWDSC); Los Angeles Department of Water and Power (LADWP); [illegible]; Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER NEAR MENDOTA (STA. 25)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/13 1300	26*	54	9.7	90	200	6.8	1.04[c]		19 / 0.83		0.0 / 0.00	60 / 0.98		22 / 0.62			0.1			116[e]	44	52	3	25	Median 36	
2/2 1645	10*	56	10.7	101	480	6.9	2.20[c]		56 / 2.44		0.0 / 0.00	101 / 1.66		67 / 1.89			0.1			278[e]	53	110	27	2	Maximum 2,400.	
3/9 1445	164*	63	9.3	96	517	7.5	2.46[c]		59 / 2.57		0.0 / 0.00	102 / 1.67		76 / 2.14			0.3			298[e]	51	123	39	9	Minimum 0.23	
4/6 1125	302*	67	9.1	98	533	7.5	2.78[c]		49 / 2.13		0.0 / 0.00	94 / 1.54		77 / 2.17			0.3			308[e]	43	139	62	5		
5/4 1640	263*	67	8.7	94	811	7.7	42 / 2.10	27 / 2.18	79 / 3.44	3.4 / 0.09	0.0 / 0.00	138 / 2.26	65 / 1.35	148 / 4.17	0.0 / 0.00	0.1 / 0.01	0.2	12	Fe 0.07 PO_4 0.30 Al 0.23 [d]	445[f]	44	214	101	45		
6/1 1420	324*	74	8.0	93	331	7.3	1.82[c]		30 / 1.30		0.0 / 0.00	87 / 1.43		38 / 1.07			0.1			191[e]	42	91	20	75		
7/6 1245	386	78	8.6	104	477	7.6	2.16[c]		57 / 2.48		0.0 / 0.00	99 / 1.62		78 / 2.20			0.1			276[e]	53	108	27	20		
8/5 0745	409	74	7.7	89	1,030	7.5	3.12[c]		131 / 5.70		0.0 / 0.00	90 / 1.48		235 / 6.63			0.1			596[e]	65	156	82	130		
9/10 0830	302	75	7.6	89	616	7.5	22 / 1.10	14 / 1.15	75 / 3.26	3.6 / 0.09	0.0 / 0.00	91 / 1.49	24 / 0.50	120 / 3.38	0.6 / 0.01	0.2 / 0.01	0.2	17	Fe 0.08 Al 0.19 PO_4 0.25 [d]	322[f]	58	113	38	40		
10/8 0930	80	68	8.5	93	560	7.5	2.50[c]		64 / 2.78		0.0 / 0.00	113 / 1.85		97 / 2.74			0.3			324[e]	53	125	32	25		
11/5 0950	74	55	9.9	93	847	7.5	3.76[c]		111 / 4.83		0.0 / 0.00	150 / 2.46		141 / 3.98			0.3			490[e]	56	188	65	25		
12/10 0915	53	47	12.3	104	872	7.5	3.92[c]		113 / 4.92		0.0 / 0.00	143 / 2.34		149 / 4.20			0.4			504[e]	56	196	79	5		

* Daily Mean

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER ABOVE MERCED RIVER (STA. [illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[e]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
[illegible]																										USGS
[illegible]		54			1,240	7.9	51	27	1[illegible]2	3.5	[illegible]	217	175	178	4.3					784	[illegible]					
2/17 [illegible]		54			1,422	[illegible]	54	[illegible]	1[illegible]	2.3	0.0	168	273	20[illegible]	4.3					[illegible]	[illegible]					
[illegible]		[illegible]			2,731	7.7	97	[illegible]	384	[illegible]	0.[illegible]	243	409	525	5.6					[illegible]776	[illegible]					
[illegible]		[illegible]			1,814	7.7	69	47	[illegible]	4.3	[illegible]	189	234	34[illegible]	1.9					[illegible]	[illegible]					
[illegible]		7[illegible]			1,[illegible]97	7.[illegible]	71	4[illegible]	2[illegible]1	[illegible]	[illegible]	178	242	[illegible]	1.9					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	7.7	[illegible]	36	173	2.7	[illegible]	186	1[illegible]4	26[illegible]	[illegible].6					[illegible]	[illegible]					
[illegible]		[illegible]			1,[illegible]91	7.4	51	35	1[illegible]1	1.9	[illegible]	163	162	244	[illegible]					[illegible]	[illegible]					
[illegible]					[illegible]	7.7	[illegible]	41	242	[illegible]	0.0	1[illegible]	199	3[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	7.8	84	[illegible]8	27[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	472	4.[illegible]					[illegible]	[illegible]					
[illegible]		7[illegible]			[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	198	4[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	7.[illegible]	[illegible]	7[illegible]	384	[illegible]	[illegible]	268	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]					[illegible]	[illegible]	[illegible]	77	[illegible]	1.9	1.2	26[illegible]	[illegible]	[illegible]	[illegible].6					[illegible]	[illegible]					

a [illegible]

b Laboratory pH

c [illegible]

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health [illegible] United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWDSC); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER AT MOSSDALE BRIDGE (STA. 102)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH [a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform [h] MPN/ml	Analyzed by [i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Tidal																									USGS
1/13 0950		58	8.4	82	538	7.2	2.32[c]		60 / 2.61		0.0 / 0.00	103 / 1.69		82 / 2.31			0.2			304[e]	53	116	32	20	Median 23.	
2/10 0900		50	10.5	93	748	7.7	3.22[c]		87 / 3.78		0.0 / 0.00	126 / 2.07		123 / 3.47			0.3			423[e]	54	161	58	0	Maximum >7,000.	
3/12 1700		60	8.8	88	705	7.2	3.24[c]		79 / 3.44		0.0 / 0.00	124 / 2.03		114 / 3.21			0.2			399[e]	51	162	60	40	Minimum <0.045	
4/3 1020		70	13.6	151	873	8.1	4.04[c]		96 / 4.18		0.0 / 0.00	162 / 2.66		156 / 4.40			0.3			494[e]	51	202	69	40		
5/13 1230		74	8.4	97	1,070	7.9	54 / 2.69	25 / 2.09	131 / 5.70	5.2 / 0.13	0.0 / 0.00	186 / 3.05	115 / 2.39	180 / 5.08	3.4 / 0.05	0.2 / 0.01	0.3	20	Al 0.15 PO_4 0.70 d	626[f]	54	239	86	85		
6/10 1000		70	10.3	114	1,010	8.3	4.64[c]		115 / 5.00		0.0 / 0.00	178 / 2.92		200 / 5.64			0.2			572[e]	52	232	86	30		
7/3 0700		74	4.4	51	1,060	7.9	4.92[c]		129 / 5.61		0.0 / 0.00	188 / 3.08		205 / 5.78			0.3			600[e]	53	246	92	15		
8/12 0800		82	6.5	82	1,110	7.9	4.92[c]		131 / 5.70		0.0 / 0.00	184 / 3.02		232 / 6.54			0.2			628[e]	54	246	95	30		
9/11 0530		79	6.8	83	1,090	7.9	58 / 2.89	24 / 2.01	132 / 5.74	6.4 / 0.16	0.0 / 0.00	203 / 3.33	75 / 1.56	210 / 5.92	0.8 / 0.01	0.0 / 0.00	0.2	27	Al 0.09 Zn 0.05 d PO_4 0.45	633[f]	53	245	79	10		
10/8 1615		68	7.7	84	1,050	7.8	4.74[c]		127 / 5.52		0.0 / 0.00	195 / 3.20		198 / 5.58			0.2			594[e]	54	237	77	40		
11/7 0815		57	10.4	98	767	7.6	3.46[c]		83 / 3.61		0.0 / 0.00	141 / 2.31		130 / 3.67			0.3			434[e]	51	173	57	20		
12/11 0700		48	11.1	95	771	7.3	3.48[c]		90 / 3.92		0.0 / 0.00	130 / 2.13		142 / 4.00			0.2			436[e]	53	174	67	35		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

SAN JOAQUIN RIVER AT PATTERSON WATER COMPANY (STA. [illegible])

Date and time sampled P S T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[c]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1 [illegible]																										[illegible]
[illegible]		76			1,018	[illegible]	48	[illegible]	133	2.3	[illegible]	[illegible]	116	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	127	97	[illegible]	3.1					464	[illegible]					
[illegible]		[illegible]			[illegible]	7.7	[illegible]	[illegible]	228	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	145	[illegible]	[illegible]	[illegible]	139	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.3					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	172	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					999	[illegible]					
[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					

a Field pH

b Laboratory pH

c [illegible]

d [illegible] reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g [illegible]

h [illegible] United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER ABOVE SALT SLOUGH (STA. 111b)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH [b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm [g]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform [h] MPN/ml	Analyzed by [i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USBR
1/15 1300		56			248	7.3	21	70	17	1.6	0.0	94	58	22	0.6					156	31					
2/17 1245		54			376	8.2	22	12	41	0.9	0.0	134	27	33	6.2					252	46					
3/16 1215		62			996	7.7	50	15	154	1.2	0.0	213	73	173	1.9					608	64					
4/14 1240		68			941	7.5	46	20	107	2.0	0.0	179	72	158	3.1					548	54					
5/13 1315		72			863	7.7	50	19	89	3.5	0.0	154	89	132	2.5					530	48					
6/16 1405		69			1,036	7.7	59	23	99	2.7	0.0	174	93	167	0.6					700	47					
7/16 1025		74			1,168	7.4	63	26	118	3.9	0.0	187	102	204	0.6					682	49					
8/11 1305					1,401	7.5	60	30	161	5.5	0.0	186	107	279	0.6					896	56					
9/16 1330		69			1,357	8.0	64	29	144	5.9	0.0	186	92	271	2.5					812	52					
10/14 1350		70			1,076	8.1	56	23	112	5.5	0.0	176	75	189	2.5					628	50					
11/16 1400		60			1,488	8.0	57	24	185	2.3	0.0	262	88	263	0.6					852	62					
12/14 1315					1,885	8.1	66	35	253	4.3	0.0	300	115	373	0.6					1.124	64					

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);, San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

SAN JOAQUIN RIVER AT SAN ANDREAS LANDING (STA. [illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
							Mineral constituents in parts per million / equivalents per million																			
1957	Tidal																									[illegible]
[illegible]					152	6.5	12	5.6	9.4	[illegible]	[illegible]	40	11	14	1.9					[illegible]	[illegible]					
[illegible]					153	7.2	13	5.9	8.7	[illegible]	[illegible]	59	12	8.9	2.5					[illegible]	[illegible]					
[illegible]					[illegible]	[illegible]	17	8.3	18	[illegible]	13	43	21	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			146	6.8	13	[illegible]	7.6	[illegible]	[illegible]	[illegible]	24	6.4	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	5.7	14	[illegible]	[illegible]	[illegible]	29	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			258	[illegible]	16	9.4	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			664	[illegible]	[illegible]	[illegible]	72	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]					[illegible]	[illegible]	28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]					[illegible]	[illegible]	13	8.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]					454	[illegible]	17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	17	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	15	[illegible]	[illegible]	[illegible]	[illegible]	81	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	17	[illegible]	[illegible]	1.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		47			[illegible]	[illegible]	18	[illegible]	13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					

a Field pH

b Laboratory pH

c [illegible]

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{6+}), reported here as [illegible] except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h [illegible] monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER NEAR VERNALIS (STA. 27)

Mineral constituents in parts per million / equivalents per million

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25° C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/12 1340	2,560	58	8.4	82	477	6.5	2.07[c]		54 / 2.35		0.0 / 0.00	96 / 1.57		70 / 1.97			0.2			270[e]	53	104	25	20	Median 96.	
2/2 1110	2,020	50	10.5	93	794	7.1	3.40[c]		108 / 4.70		0.0 / 0.00	142 / 2.33		127 / 3.58			0.4			449[e]	58	170	54	2	Maximum 7,000.	
3/9 1015	2,930	55	9.4	88	609	7.3	2.60[c]		69 / 3.00		0.0 / 0.00	109 / 1.79		96 / 2.71			0.3			344[e]	54	130	41	1	Minimum 0.62	
4/5 1350	780	70	8.8	98	1,010	8.1	4.52[c]		100 / 4.35		0.0 / 0.00	166 / 2.72		190 / 5.36			0.3			570[e]	49	226	90	0		
5/4 1030	1,070	64	10.4	108	801	7.8	43 / 2.15	22 / 1.85	83 / 3.61	4.4 / 0.11	0.0 / 0.00	164 / 2.69	54 / 1.12	136 / 3.84	1.8 / 0.03	0.1 / 0.01	0.2	29	Fe 0.04 Zn 0.01 PO_4 0.55 Al 0.14[d]	455[f]	47	200	66	25		
6/1 0905	715	70	10.2	114	971	8.1	4.54[c]		111 / 4.83		0.0 / 0.00	182 / 2.98		185 / 5.22			0.2			548[e]	52	227	78	30		
7/3 0745	392	72	11.0	125	976	8.1	4.05[c]		125 / 5.44		0.0 / 0.00	141 / 2.31		198 / 5.58			0.3			552[e]	57	203	87	10		
8/12 0900	323	82	7.8	98	1,140	8.0	5.00[c]		132 / 5.74		0.0 / 0.00	182 / 2.98		260 / 7.33			0.3			644[e]	53	250	101	60		
9/10 1500	554	79	8.0	98	1,130	8.1	58 / 2.89	26 / 2.15	134 / 5.83	6.4 / 0.16	0.0 / 0.00	195 / 3.20	62 / 1.29	232 / 6.54	1.0 / 0.02	0.2 / 0.01	0.3	26	Fe 0.05 PO_4 0.35 Cu 0.02 Zn 0.01 Al 0.09[d]	642[f]	53	252	92	20		
10/8 1500	1,000	68	9.0	98	1,030	8.1	4.64[c]		132 / 5.74		0.0 / 0.00	189 / 3.10		190 / 5.36			0.3			582[e]	55	•232	77	10		
11/5 1510	1,010	59	10.6	104	743	7.5	3.28[c]		85 / 3.70		0.0 / 0.00	133 / 2.18		129 / 3.64			0.1			420[e]	53	164	55	5		
12/10 1540	1,210	51	12.1	108	743	7.7	3.36[c]		80 / 3.48		0.0 / 0.00	122 / 2.00		133 / 3.75			0.1			420[e]	51	168	68	10		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER NEAR VERNALIS (STA. [illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[g]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
[illegible]	Average Daily Mean																									[illegible]
[illegible]	[illegible],948				[illegible]	[illegible]	[illegible] / 1.[illegible]	[illegible] / 1.[illegible]	[illegible]	4.[illegible] / 0.10	0. / 0.00	1[illegible] / [illegible].1[illegible]	[illegible] / 1.00	[illegible] / [illegible]	[illegible] / 0.[illegible]	0.[illegible] / [illegible]	0.1	[illegible]	[illegible]	41[illegible]	[illegible]	[illegible]	[illegible]		Median [illegible]	
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible] / 1.1[illegible]	[illegible]	4. / [illegible].11	[illegible] / [illegible].00	111 / 1.[illegible]	[illegible]0 / 0.[illegible]	100 / [illegible]	[illegible] / 0.00	0.1 / [illegible]	[illegible]	28	Fe [illegible]	[illegible]	[illegible]	126	[illegible]		Maximum [illegible]	
[illegible]	[illegible]				[illegible]	[illegible]	[illegible] / [illegible].00	[illegible] / 1.[illegible]	[illegible]	[illegible] / [illegible].1[illegible]	[illegible] / [illegible].00	1[illegible] / [illegible]	[illegible]	[illegible] / [illegible].71	[illegible]	0.[illegible] / [illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	14[illegible]	[illegible]		Minimum [illegible]	
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	1[illegible] / 1.4	[illegible]	[illegible]	[illegible] / [illegible].00	1[illegible] / [illegible].16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10[illegible] / 1.[illegible]	[illegible] / 1.[illegible]	[illegible]	[illegible] / 0.0[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	4,[illegible]				[illegible]	[illegible]	[illegible] / [illegible].00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.[illegible]	[illegible]	[illegible] / [illegible].10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / [illegible].00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / [illegible].00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / [illegible].00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / [illegible].00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

a Field pH.
b Laboratory pH.
c Sum of calcium and magnesium in epm.
d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.
e Derived from conductivity vs TDS curves.
f Determined by addition of analyzed constituents.
g Gravimetric determination.
h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.
i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-4 (Continued)

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION ([illegible])

SAN JOAQUIN RIVER NEAR V[illegible] (STA. [illegible])

Date and time sampled P.S.T	Discharge in cfs Average Daily Mean	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total[g] dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
5/19-31	766				[illegible]	8.1	50 / 2.50	25 / 2.06	111 / 4.83	6.6 / 0.17	0 / 0.00	176 / 2.88	76 / 1.58	168 / 4.74	3.9 / 0.06	0.2 / 0.01	0.[illegible]	33	Fe 0.00	560	51	[illegible]	94			USGS
6/1-9	664				988	7.[illegible]	[illegible]0 / 2.50	27 / 2.26	129 / 5.61	7.0 / 0.18	0 / 0.00	180 / 2.95	101 / 2.10	188 / 5.30	[illegible].0 / 0.05	0.2 / 0.01	0.2	[illegible]	Fe 0.00	[illegible]	[illegible]	[illegible]38	90			
6/10-30	471				1,110	7.7	58 / 2.89	24 / 1.95	135 / 5.87	7.6 / 0.19	0.0 / 0.00	186 / 3.05	76 / 1.58	215 / 6.06	2.6 / 0.04	0.2 / 0.01	0.3	36	Fe 0.01	659	54	242	89			
7/1-8	408				1,130	7.[illegible]	58 / 2.89	31 / 2.51	146 / 6.35	7.4 / 0.19	0 / 0.00	192 / 3.15	100 / 2.08	230 / 6.49	3.3 / 0.05	0.2 / 0.01	0.3	36	Fe 0.00	709	[illegible]	270	113			
7/9-20	302				1,260	8.1	64 / 3.19	31 / 2.53	155 / 6.74	8.6 / 0.22	0.0 / 0.00	188 / 3.08	83 / 1.73	265 / 7.47	4.1 / 0.07	0.2 / 0.01	0.3	36	Fe 0.01	748	53	286	132			
7/21-31	279				1,140	8.2	60 / 2.99	27 / 2.25	158 / 6.87	8.0 / 0.20	0.0 / 0.00	164 / 2.69	67 / 1.39	275 / 7.76	5.0 / 0.08	0.2 / 0.01	0.3	30	Fe 0.00	707	56	262	128			
8/1-19	304				1,210	7.3	65 / 3.24	27 / 2.20	140 / 6.09	7.8 / 0.20	0.0 / 0.00	194 / 3.18	57 / 1.19	270 / 7.61	2.0 / 0.03	0.2 / 0.01	0.4	42	Fe 0.01	738	52	272	113			
8/20-31	558				1,050	7.[illegible]	57 / 2.84	24 / 2.00	120 / 5.22	6.4 / 0.16	0.0 / 0.00	194 / 3.18	65 / 1.35	210 / 5.92	2.0 / 0.03	0.2 / 0.01	0.2	38	Fe 0.01	643	51	242	83			
9/1-17	563				1,120	7.3	59 / 2.94	26 / 2.16	128 / 5.57	6.6 / 0.17	0.0 / 0.00	204 / 3.34	73 / 1.52	225 / 6.34	2.0 / 0.03	0.2 / 0.01	0.3	37	Fe 0.01	675	51	255	88			
9/19-28	1,260				735	7.1	39 / 1.95	16 / 1.35	77 / 3.35	6.9 / 0.18	0.0 / 0.00	156 / 2.56	39 / 0.81	119 / 3.36	3.8 / 0.06	0.2 / 0.01	0.1	32	Fe 0.03	433	49	165	37			
10/7-15	783				1,010	7.6	52 / 2.59	24 / 2.01	113 / 4.92	5.4 / 0.14	0.0 / 0.00	190 / 3.11	77 / 1.60	185 / 5.22	3.1 / 0.05	0.2 / 0.01	0.3	38	Fe 0.01	600	51	230	74			
10/16-31	977				781	7.3	40 / 2.00	19 / 1.56	86 / 3.74	4.6 / 0.12	0.0 / 0.00	144 / 2.36	65 / 1.35	137 / 3.86	3.6 / 0.06	0.2 / 0.01	0.1	31	Fe 0.03	464	50	178	60			
11/1-15	1,011				764	7.3	39 / 1.95	18 / 1.47	86 / 3.74	4.0 / 0.10	0 / 0.00	136 / 2.23	61 / 1.27	135 / 3.81	3.6 / 0.06	0.2 / 0.01	0.2	30	Fe 0.02	451	52	171	59			
11/16-29	1,100				783	7.4	39 / 1.95	19 / 1.59	91 / 3.96	3.6 / 0.09	0 / 0.00	134 / 2.20	69 / 1.44	141 / 3.98	4.7 / 0.08	0.2 / 0.01	0.2	29	Fe 0.03	475	52	177	67			

Mineral constituents in parts per million / equivalents per million.

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER WEST STANISLAUS I. D. INTAKE (STA. 27b)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[c]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/15 [illegible]		56			1,113	[illegible]	[illegible]	[illegible]	140	[illegible]	[illegible]	187	128	183	[illegible]					[illegible]	[illegible]					
2/17 [illegible]		54			756	[illegible]	33	[illegible]	86	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
3/16 [illegible]		[illegible]			1,578	7.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
4/14 [illegible]		[illegible]			1,155	[illegible]	[illegible]	36	[illegible]	[illegible]	[illegible]	[illegible]	140	[illegible]	[illegible]					[illegible]	[illegible]					
5/13 [illegible]		[illegible]			[illegible]	7.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
7/[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]/11 [illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]/14 [illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]		[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]/16 [illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					

a Field pH

b Laboratory pH

[illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

SAN JOAQUIN RIVER AT WHITEHOUSE (STA. 24b)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[b]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[g]	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USBR
1/27 1140	33	51			81															62						
2/10 1115	48	48			101															70						
2/24 1500	56	71			144															128						
3/10 0930	35	58			141															132						
3/24 0930	23	58			118															92						
4/7 1100	14	68			106	6.9	9.8	0.7	8.5	0.0	0.0	38	15	64	0.6					68	40					
4/28 1145	44	67			78															62						
5/12 1135	29	75			82															68						
5/26 1000	30	68			77	6.6	6.4	1.8	7.4	1.6	0.0	32	2.4	8.5	0.0					50	39					
6/9 1000	12	70			78															66						
6/23 0900	12	80			80															60						
7/14 1120	36	80			116															72						
7/28 1230	29	82			76	7.5	4.8	1.1	6.9	1.2	0.0	20	5.8	6.0	0.6					52	45					
8/11 1230	14	81			80															60						

Mineral constituents in parts per million / equivalents per million.

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

SAN JOAQUIN RIVER AT WHITEHOUSE (STA. 24b) continued

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
1969																										USGS
8/[illegible]	4[illegible]	78			[illegible]																					
[illegible]	26	[illegible]			[illegible]															88						
[illegible]	[illegible]	[illegible]			64															[illegible]						
[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	2.3	6.[illegible]	[illegible]	[illegible]	28	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]					
[illegible]	[illegible]	[illegible]			7[illegible]																					
[illegible]	26	68			7[illegible]															[illegible]						
[illegible]	[illegible]	[illegible]			7[illegible]																					
[illegible]	[illegible]	[illegible]			76																					
[illegible]	[illegible]	[illegible]			71																					
[illegible]	[illegible]	64			87																					

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

STANISLAUS RIVER NEAR MOUTH (STA. 29)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25° C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/12 1145	604	56	8.5	81	130	7.3	1.04[c]		5.4 / 0.23		0.0 / 0.00	60 / 0.98		4.8 / 0.14			0.0			88[e]	18	52	3	25	Median 42.	
2/2 1135	287	52	9.7	88	266	7.1	2.04[c]		15 / 0.65		0.0 / 0.00	134 / 2.20		9.0 / 0.25			0.0			179[e]	24	102	0	2	Maximum 7,000	
3/9 0945	1,120	53	9.8	90	103	7.2	0.83[c]		3.5 / 0.15		0.0 / 0.00	48 / 0.79		3.5 / 0.10			0.0			69[e]	15	42	3	1	Minimum 2.3	
4/5 1330	132	71	9.9	111	283	7.5	2.16[c]		16 / 0.70		0.0 / 0.00	146 / 2.39		9.5 / 0.27			0.0			191[e]	24	108	0	0		
5/4 1000	139	62	8.8	90	267	7.3	25 / 1.25	9.8 / 0.81	15 / 0.65	2.1 / 0.05	0.0 / 0.00	142 / 2.33	7.7 / 0.16	8.5 / 0.24	1.7 / 0.03	0.1 / 0.01	0.0	32	Fe 0.02 Zn 0.01[d] PO_4 0.30 Al 0.06	172[f]	24	103	0	10		
6/1 0950	76	70	7.8	87	297	7.3	2.24[c]		15 / 0.65		0.0 / 0.00	153 / 2.51		9.0 / 0.25			0.0			200[e]	22	112	0	10		
7/3 0815	82	61	7.5	75	275	7.3	2.20[c]		17 / 0.74		5 / 0.17	147 / 2.41		8.5 / 0.24			0.0		Tot. Alk. 157	185[e]	25	110	0	5		
8/12 1030	29	84	6.6	85	264	7.3	2.12[c]		16 / 0.70		0.0 / 0.00	150 / 2.46		8.0 / 0.23			0.0			178[e]	25	106	0	25		
9/10 1600	47	79	7.0	85	287	7.3	28 / 1.40	10 / 0.84	18 / 0.78	2.9 / 0.07	0.0 / 0.00	158 / 2.59	9.0 / 0.19	13 / 0.37	1.6 / 0.03	0.1 / 0.01	0.0	35	PO_4 0.20 Cu 0.01[d]	196[f]	25	112	0	7		
10/8 1530	145	68	7.7	85	307	7.3	2.32[c]		19 / 0.83		0.0 / 0.00	163 / 2.67		14 / 0.39			0.1			207[e]	26	116	0	3		
11/5 1545	109	60	10.0	100	291	7.5	2.26[c]		18 / 0.78		0.0 / 0.00	156 / 2.56		8.8 / 0.25			0.0			196[e]	26	113	0	5		
12/10 1600	160	51	11.3	101	273	7.4	2.14[c]		17 / 0.74		0.0 / 0.00	136 / 2.23		8.5 / 0.24			0.0			184[e]	26	107	0	30		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-6

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

STANISLAUS RIVER BELOW TULLOCH DAM (STA. 29m)

Mineral constituents in parts per million / equivalents per million

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
1959																										USGS
1/16 1000	1 1[illegible]	49	10.0	87	89.1	7.4[a]	0.88[c]		2.6 / 0.11		0.0 / 0.00	42 / 0.69		2.8 / 0.08			0.1			62[e]	17	44	[illegible]	[illegible]	Median [illegible]	
2/4 0925	[illegible]	48	10.1	86	102	7.0[b]	0.84[c]		3.2 / 0.14		0.[illegible] / 0.00	43 / 0.70		3.0 / 0.08			[illegible]			71[e]	14	42	7	1	Maximum [illegible]	
3/10 1200	[illegible]	52	9.8	89	86.6	7.2[a]	0.69[c]		2.6 / 0.11		0.0 / 0.00	39 / 0.64		3.0 / 0.08			0.0			6[illegible][e]	14	34	2	[illegible]	Minimum [illegible]	
4/7 1330	[illegible]	56	9.4	89	59.9	7.2[a]	0.48[c]		2.3 / 0.10		[illegible] / 0.00	31 / 0.51		1.8 / 0.05			0.1			42[e]	17	24	[illegible]	[illegible]		
5/6 1430		6[illegible]	8.9	94	87.4	7.3[a]	9.2 / 0.46	3.9 / 0.32	2.7 / 0.12	0.5 / 0.01	0.[illegible] / 0.00	43 / 0.7[illegible]	6.7 / 0.14	1.[illegible] / 0.04	[illegible]	[illegible]	[illegible]	1[illegible]	Fe [illegible] PO_4 [illegible][d] Al [illegible]	6[illegible]	[illegible]	[illegible]	[illegible]	1		
6/4 1420		66	8.[illegible]	85	53.1	7.1[a]	[illegible].44[c]		2.8 / 0.12		0.0 / 0.00	25 / 0.41		1.5 / 0.04			[illegible]			3[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
7/8 1450	[illegible]	68	6.8	74	57.2	7.[illegible][a]	0.45[c]		2.5 / 0.11		[illegible] / [illegible]	29 / 0.48		[illegible].0 / 0.03			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
8/[illegible] 1[illegible]40	[illegible]	72	6.8	77	57.6	6.9[a]	[illegible].47[c]		2.5 / [illegible].11		[illegible] / [illegible]	30 / 0.49		[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
9/1 [illegible]	[illegible]	70	[illegible].6	73	255	7.0[a]	15 / 1.35	9.4 / 0.77	[illegible] / 0.6[illegible]	2.4 / 0.06	[illegible] / [illegible]	143 / 2.34	7.[illegible] / 0.1[illegible]	7.[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	28	PO_4 [illegible] Zn [illegible][d]	[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
10/[illegible] 1345	[illegible]	58	[illegible]	89	[illegible]7.[illegible]	7.1[a]	0.55[c]		1.4 / 0.1[illegible]		[illegible] / [illegible]	[illegible] / [illegible]		[illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
11/9 13[illegible]	[illegible]	[illegible]9	9.[illegible]	9[illegible]	[illegible]	7.[illegible][a]	[illegible][c]		2.8 / 0.12		0.0 / 0.00	42 / 0.69		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
12/[illegible]	Not sampled																									

[illegible footnotes a–i]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

STOCKTON SHIP CHANNEL ON RINDGE ISLAND (STA. 100)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959	Tidal																									USGS
1/12 1245		54	8.8	82	634	7.2	2.95[c]		63 / 2.74		0.0 / 0.00	103 / 1.69		105 / 2.96			0.1			352[e]	48	148	64	15	Median 230.	
2/9 1335		50	8.8	78	718	7.3	3.20[c]		81 / 3.52		0.0 / 0.00	133 / 2.18		116 / 3.27			0.3			399[e]	52	160	51	1	Maximum >7,000.	
3/12 0830		60	7.5	75	521	7.2	2.48[c]		52 / 2.26		0.0 / 0.00	122 / 2.00		75 / 2.12			0.2			290[e]	48	124	24	70	Minimum 2.3	
4/1 1545		65	12.5	132	597	7.9	2.78[c]		63 / 2.74		0.0 / 0.00	122 / 2.00		92 / 2.59			0.2			332[e]	50	139	47	55		
5/12 0900		70	7.0	78	451	7.3	26 / 1.30	13 / 1.10	50 / 2.18	3.4 / 0.09	0.0 / 0.00	106 / 1.74	40 / 0.83	72 / 2.03	1.1 / 0.02	0.2 / 0.01	0.2	5.4	Al 0.03 PO_4 0.3 d	263[f]	47	120	33	85		
6/8 1500		74	10.1	117	488	8.1	2.50[c]		50 / 2.18		0.0 / 0.00	123 / 2.02		74 / 2.09			0.2			271[e]	47	125	24	27		
7/1 1440		78	7.0	85	366	7.3	2.04[c]		37 / 1.61		0.0 / 0.00	104 / 1.70		46 / 1.30			0.1			203[e]	44	102	17	15		
8/12 1230		80	6.8	84	408	7.3	2.32[c]		35 / 1.52		0.0 / 0.00	108 / 1.77		61 / 1.72			0.1			227[e]	40	116	27	35		
9/11 1100		79	6.0	73	810	7.3	40 / 2.00	16 / 1.32	107 / 4.65	8.6 / 0.22	0.0 / 0.00	198 / 3.25	26 / 0.54	152 / 4.29	1.6 / 0.03	0.0 / 0.00	0.2	12	Al 0.11 Zn 0.06 d PO_4 1.5	461[f]	57	166	4	5		
10/6 0730		68	7.3	80	787	7.3	3.64[c]		98 / 4.26		0.0 / 0.00	186 / 3.05		142 / 4.00			0.2			438[e]	54	182	29	30		
11/6 1400		60	8.3	83	770	7.5	3.48[c]		89 / 3.87		0.0 / 0.00	162 / 2.66		132 / 3.72			0.3			428[e]	53	174	41	25		
12/11 1415		52			752	7.4	3.48[c]		88 / 3.83		0.0 / 0.00	142 / 2.33		135 / 3.81			0.2			418[e]	52	174	58	45		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

STONY CREEK AT BLACK BUTTE DAM SITE (STA. 1[illegible])

Mineral constituents in parts per million / equivalents per million (each mineral constituent cell: ppm / epm)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
1959																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	614	7.[illegible]	[illegible] / [illegible]	24 / 1.94	42 / 1.8[illegible]	1.3 / [illegible]	[illegible] / 0.00	177 / 2.90	[illegible] / 1.25	95 / 2.68	[illegible]	[illegible]	[illegible]	13		371	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13 / 1.0[illegible]	16 / 0.70	[illegible]	[illegible] / 0.00	[illegible]	[illegible]	26 / 0.73	[illegible] / 0.01	[illegible] / 0.01	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.40	[illegible]	[illegible] / 0.52	[illegible]	1 / 0.03	119 / 1.95	18 / 0.37	15 / 0.42	[illegible] / 0.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	260	7.7	[illegible] / 1.40	[illegible]	[illegible]	[illegible]	[illegible] / 0.00	123 / 2.02	[illegible] / 0.31	14 / 0.39	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
5/[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.4[illegible]	[illegible]	13 / 0.57	[illegible]	[illegible]	[illegible]	[illegible] / 0.31	17 / 0.48	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.40	[illegible] / 1.00	14 / 0.61	[illegible]	4 / 0.13	13[illegible] / [illegible].16	13 / 0.27	17 / 0.48	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
7/[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14 / [illegible]	[illegible]	4 / 0.1[illegible]	[illegible]	[illegible]	1[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11 / [illegible]	17 / 1.4[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14 / 0.3[illegible]	[illegible]	[illegible] / 0.51	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	144	[illegible]	[illegible]	[illegible]	1[illegible] / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	97	[illegible]	[illegible]	[illegible]		1[illegible] / [illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	98	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

STONY CREEK NEAR HAMILTON CITY ([illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/7 133[illegible]	58	50	11.[illegible]	96	[illegible]	7.[illegible]	3.84[c]		28 1.22		0.0 0.00	152 2.49		64 1.80			[illegible]			2[illegible]1[e]	24	192	[illegible]	1	Median 23	
[illegible]/10 1200	74	48	11.8	1[illegible]2	379	7.5	3.20[c]		16 0.70		0.0 [illegible]	166 2.72		24 [illegible]			[illegible]1			218[e]	19	160	24	[illegible]	Maximum [illegible]	
3/12 1[illegible]	405	56	10.[illegible]	102	289	8.1	2.48[c]		13 0.57		0.0 0.00	130 2.13		17 0.48			0.1			166[e]	19	124	17	30	Minimum 2.3	
4/14 1000	22.[illegible]	66	8.8	94	328	7.7	2.80[c]		13 0.57		0.0 0.00	152 2.49		17 0.48			0.1			189[e]	17	140	15	0		
5/11 1005	5.58	71	6.9	77	339	7.5	36 1.80	13 1.04	14 0.61	0.5 0.01	0.0 0.00	163 2.67	14 0.29	18 0.51	0.0 0.00	0.0 0.00	0.2	11	Fe 0.02 Al 0.06[d] PO_4 0.05	187[f]	18	142	8	10		
6/11	Not Sampled - Dry																									
7/14	Not Sampled - Dry																									
8/11	Not Sampled - Dry																									
9/1	Not Sampled - Dry																									
10/13	Not Sampled - Dry																									
11/4	Not Sampled - Dry																									
12/2	Not Sampled - Dry																									

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

TH[illegible] CREEK NEAR MOUTH ([illegible])

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm[f]	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
[illegible]/6 1300	Not Available	49	11.6	1[illegible]1	[illegible]45	[illegible].5	[illegible]9 / 1.45	8.6 / 0.71	9.3 / [illegible]	1.5 / 0.[illegible]	[illegible]	[illegible] / 1.[illegible]	[illegible]	1[illegible] / [illegible]	6.5 / 0.1[illegible]	0.[illegible] / .01	0.2	13		[illegible]	[illegible]	1[illegible]	[illegible]			
[illegible] 1[illegible]30	Not Available	49	[illegible]	1[illegible]	188	[illegible].4	26 / 1.3[illegible]	4.[illegible] / 0.40	[illegible].6 / 0.[illegible]	[illegible] / 0.01	0 / 0.00	92 / 1.[illegible]1	[illegible] / 0.[illegible]7	5.0 / 0.14	0.4 / 0.01	0.0 / 0.00	0.0	[illegible]0		1[illegible]	[illegible]	[illegible]	[illegible]			
3/13 141[illegible]	[illegible] est	[illegible]	[illegible]	100	[illegible]	[illegible]	[illegible] / 1.[illegible]	5.[illegible] / 0.[illegible]1	[illegible].3 / 0.14	0.6 / 0.0	0 / 0.[illegible]	80 / 1.[illegible]1	11 / [illegible]3	[illegible].7 / 0.08	0.1 / [illegible]	0.[illegible] / 0.[illegible]	0.[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	5			
4/1[illegible] 1[illegible]	[illegible] est	[illegible]	[illegible]	[illegible]	[illegible]	7.1	[illegible] / 1.16	6.[illegible] / [illegible].48	[illegible].3 / [illegible].19	[illegible].5 / [illegible]	[illegible]	[illegible] / 1.[illegible]4	[illegible]1 / [illegible]3	[illegible].5 / 0.07	[illegible]	0.1 / [illegible]01	0.0	10		[illegible]	[illegible]	[illegible]	[illegible]			
5/[illegible] [illegible]	[illegible] est	[illegible]	[illegible]	[illegible]5	[illegible]	[illegible]	[illegible] / 1.0[illegible]	1[illegible] / [illegible].95	[illegible].3 / [illegible].21	[illegible].7 / 0.02	[illegible] / 0.00	144 / [illegible].36	19 / 0.40	6.[illegible] / 0.17	[illegible].9 / 0.[illegible]5	[illegible]	[illegible].0	[illegible]6	Fe [illegible] Al [illegible][d] PO_4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
6/1 1310	[illegible] est	7[illegible]	7.8	[illegible]1	[illegible]39	[illegible]	[illegible] / 1.[illegible]	8.1 / 0.67	5.8 / [illegible]5	1.[illegible] / 0.[illegible]	[illegible] / [illegible]0	[illegible]	1[illegible] / 0.[illegible]	[illegible].0 / 0.17	0.[illegible] / 0.00	0.1 / 0.01	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
7/1	Dry																									
8/10	Dry																									
[illegible]1	Dry																									
[illegible]	Dry																									
[illegible]	Dry																									
[illegible]	Dry																									

Mineral constituents in parts per million / equivalents per million.

TABLE B-4
ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

THOMES CREEK AT PASKENTA (STA. 1[illegible])

Mineral constituents in parts per million / equivalents per million (each cell: ppm / epm)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
19[illegible]																										USGS
[illegible]	[illegible]4	42	12.9	1[illegible]2	242	7.5	31 / 1.55	11 / 0.93	8.6 / 0.37	0.6 / 0.02	0.0 / 0.00	120 / 1.97	27 / 0.56	10 / 0.28	0.6 / 0.01	0.1 / 0.01	0.2	14		162[f]	13	124	26			
2/[illegible]	178	50	11.1	98	160	7.7	21 / 1.05	5.5 / 0.45	3.7 / 0.16	0.3 / 0.01	0.0 / 0.00	80 / 1.31	12 / 0.25	3.0 / 0.08	0.0 / 0.00	0.1 / 0.01	0.0	12		97[f]	10	[illegible]	[illegible]			
[illegible]/12	475	[illegible]2	10.8	98	127	7.7	17 / 0.85	3.8 / 0.31	2.8 / 0.12	0.3 / 0.01	0.0 / 0.00	66 / 1.08	7.7 / 0.16	2.4 / 0.07	0.0 / 0.00	0.0 / 0.00	0.0	10		77[f]	[illegible]	[illegible]	[illegible]			
4/13 1645	311	58	9.6	93	116	7.5	16 / 0.80	3.2 / 0.26	2.6 / 0.11	0.6 / 0.02	0.0 / 0.00	61 / 1.00	3.8 / 0.08	2.0 / 0.06	0.0 / 0.00	0.3 / 0.02	0.1	8.7		67[f]	9	53	[illegible]			
5/11 1450	153	72	8.2	93	143	7.7	20 / 1.00	3.9 / 0.32	3.1 / 0.13	0.4 / 0.01	0.0 / 0.00	75 / 1.23	3.8 / 0.08	4.2 / 0.12	0.0 / 0.00	0.0 / 0.00	0.1	9.7	Fe 0.03 Al 0.12[d] PO4 0.00	82[f]	9	66	4	30		
6/1 0940	92	78	8.0	96	180	7.7	25 / 1.25	4.7 / 0.39	5.6 / 0.24	0.9 / 0.02	0.0 / 0.00	90 / 1.48	14 / 0.29	5.0 / 0.14	0.0 / 0.00	0.0 / 0.00	0.1	17		116[f]	13	92	8			
7/14 1025	6.4	81	8.4	104	282	8.0	35 / 1.75	7.2 / 0.59	11 / 0.48	1.2 / 0.03	2 / 0.07	110 / 1.80	21 / 0.44	16 / 0.45	0.4 / 0.01	0.0 / 0.00	0.1	9.0	Tot. Alk. 114	157[f]	17	117	24			
8/11 1020	1.2	80	8.0	98	362	7.8	39 / 1.95	12 / 0.95	17 / 0.74	2.0 / 0.05	0.0 / 0.00	117 / 1.92	35 / 0.73	36 / 1.02	0.0 / 0.00	0.1 / 0.01	0.2	17		216[f]	20	145	49			
9/2 1330	2.2	82	10.1	127	390	8.1	40 / 2.00	13 / 1.05	19 / 0.83	1.7 / 0.04	0.0 / 0.00	116 / 1.90	39 / 0.81	43 / 1.21	0.0 / 0.00	0.0 / 0.00	0.2	14	Al 0.05 PO4 0.00[d] Cu 0.01	227[f]	21	152	57	1		
10/13 1310	7.1	68	9.8	107	410	8.1	46 / 2.30	13 / 1.10	19 / 0.83	1.0 / 0.03	0.0 / 0.00	150 / 2.46	40 / 0.83	36 / 1.02	0.0 / 0.00	0.0 / 0.00	0.3	11		240[f]	20	170	47			
11/3 1630	5.1	58	10.3	100	434	8.0	3.58[c]		21 / 0.91		6 / 0.20	150 / 2.46		35 / 0.99			0.1		Tot. Alk. 1[illegible]2	258[e]	20	179	46	3		
12/2 1315	4.9	51	11.5	106	463	7.9	52 / 2.59	17 / 1.37	20 / 0.87	1.1 / 0.03	0.0 / 0.00	188 / 3.08	34 / 0.71	38 / 1.07	0.0 / 0.00	0.0 / 0.00	0.3	12		267[f]	18	198	44			

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. [illegible])

TULE RIVER NEAR PORTERVILLE (STA. 91)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										[illegible]
1/14 1120	60	54	11.[illegible]	102	341	[illegible]	 2.88[c]		18 0.78		[illegible].0 0.00	[illegible] 3.28		11 0.31			[illegible]1			224[e]	[illegible]	[illegible]	[illegible]	[illegible]	Median [illegible]	
[illegible]	[illegible]	48	11.3	[illegible]	[illegible]	8.1[b]	 3.40[c]		21 0.91		0.0 0.00	236 3.87		13 0.37			[illegible]1			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]	Maximum [illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	101	224	[illegible]	 1.85[c]		12 0.52		0.0 0.00	130 2.13		8.4 0.24			[illegible]1			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]	Minimum [illegible]	
4/[illegible] [illegible]	[illegible]	[illegible]	[illegible]	100	[illegible]36	[illegible]	 1.98[c]		12 0.52		2 0.07	140 2.29		[illegible] 0.17			[illegible].1		[illegible] Alk 144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible] [illegible]	56	[illegible]	[illegible]	100	270	[illegible]	37 1.85	5.5 0.45	12 0.52	[illegible].1 [illegible]05	[illegible] 0.00	[illegible] 2.66	3.8 0.08	[illegible] 0.1[illegible]	[illegible] 0.00	[illegible] 0.00	[illegible]1	27	Fe [illegible] [illegible] [illegible][d] Al 0.07	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	398	[illegible]	 3.40[c]		[illegible] [illegible]		[illegible] [illegible]	242 3.97		12 0.34			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3[illegible]	7.6[b]	 3.22[c]		[illegible]3 1.00		0.0 0.[illegible]	236 3.87		1[illegible] [illegible]34			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	 3.[illegible][c]		25 1.09		[illegible].0 0.00	[illegible] 3.[illegible]		[illegible] 0.31			[illegible]			[illegible][e]	2[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	Dry																									
[illegible]	Dry																									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4[illegible]	7.[illegible]	 4.14[c]		[illegible]1 1.35		[illegible] [illegible]	[illegible]1 4.61		[illegible] [illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	 4.30[c]		[illegible] 1.22		[illegible] 0.00	[illegible] [illegible]		[illegible] [illegible]			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		

a [illegible]
b [illegible] pH
c [illegible]
d [illegible] manganese [illegible] reported here as [illegible] except as shown
e [illegible]
f [illegible]
g [illegible]
h [illegible] California Department of Public Health [illegible]
i [illegible] United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation [illegible]; United States Public Health Service [illegible]; [illegible] Los Angeles Department of Water and Power [illegible]; [illegible] Testing Laboratories [illegible] or California Department of Water Resources (DWR), as indicated

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

TUOLUMNE RIVER BELOW DON PEDRO DAM (STA. 31a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/20 1540	985	50	9.0	79	57.8	6.9	0.56[c]		2.4 0.10		0.0 0.00	26 0.43		2.0 0.06						44[e]	17	28	7	30	Median 2.3	
2/10 1510	1,340	48	9.9	85	39.4	6.9	0.32[c]		1.9 0.08		0.0 0.00	13 0.21		2.0 0.06			0.0			30[e]	20	16	[illegible]	0	Maximum 230.	
3/11 1530	1,500	48	8.4	72	60.1	7.1	0.46[c]		2.3 0.10		0.0 0.00	28 0.46		0.8 0.02			[illegible]			46[e]	18	23	0	6	Minimum 0.21	
4/14 0915	2,480	53	9.4	86	43.0	6.7	0.34[c]		2.0 0.09		0.0 0.00	20 0.33		1.2 0.03			0.0			33[e]	21	17	1	2		
5/11 0930	2,390	58	8.3	81	32.3	6.8	4.0 0.20	0.5 0.04	2.2 0.10	0.7 0.02	0.0 0.00	15 0.25	2.9 0.06	0.8 0.02	0.2 0.00	0.0 0.00	0.0	7.6	Al 0.02 PO_4 0.00 [d]	26[f]	28	12	0	2		
6/8 0820	2,390	59	7.9	79	25.8	6.8	0.20[c]		1.8 0.08		0.0 0.00	12 0.20		0.5 0.01			0.0			20[e]	29	10	0	2		
7/14 1325	2,220	64	7.5	76	24.9	6.7	0.16[c]		2.7 0.12		0.0 0.00	12 0.20		2.5 0.07			0.0			19[e]	43	8	0	10		
8/	Not Sampled																									
9/	Broken in Transit																									
10/8 1220	1,500	67	7.1	77	40.9	6.8	0.30[c]		1.8 0.08		0.0 0.00	14 0.23		2.5 0.07			0.1			31[e]	21	15	4	3		
11/14 1000	1,500	61	7.6	77	33.3	6.8	3.6 0.18	1.5 0.12	1.9 0.08		0.0 0.00	15 0.25		1.5 0.04			0.1			25[e]	21	15	3	10		
12/17 1100	1,500	52	8.7	78	36.8	6.8	0.26[c]		1.7 0.07		0.0 0.00	16 0.26		2.2 0.06			0.0			28[e]	21	13	0	17		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-6

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

TUOLUMNE RIVER AT HICKMAN-WATERFORD BRIDGE (STA. 30)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
[illegible] 1415	[illegible]	[illegible]2	8.9	80	125	7.3[a]	0.80[c]		8.6/0.37		0.[illegible]/0.00	38/0.62		17/0.48						72[e]	32	40	9	30	Median [illegible]	
2/11 1350	[illegible]	50	9.9	87	104	7.3[a]	0.60[c]		8.3/0.36		0.[illegible]/0.00	30/0.49		14/0.39			0.0			61[e]	38	30	5	[illegible]	Maximum [illegible]	
3/11 1415	[illegible]	56	10.6	100	127	7.9[a]	0.74[c]		8.5/0.37		0.[illegible]/0.00	42/0.69		14/0.39			0.0			74[e]	33	37	[illegible]	4	Minimum [illegible]	
4/14 1100	[illegible]	68	7.4	81	488	8.3[a]	2.24[c]		50/2.18		0.0/0.00	102/1.67		98/2.76			0.1			284[e]	49	112	28	[illegible]		
5/11 1100	[illegible]	74	8.3	[illegible]	483	8.3[a]	29/1.45	8.1/0.67	49/2.13	5.1/0.13	0.0/0.00	97/1.59	8.6/0.18	96/2.71	0.8/0.01	0.1/0.01	0.1	43	Al 0.36 PO_4 [illegible] [d]	288[f]	49	106	26	4		
6/8 1030	[illegible]	72	6.8	77	555	8.4[a]	2.36[c]		61/2.65		0.0/0.00	110/1.80		114/3.21			0.1			324[e]	53	118	28	8		
[illegible]	[illegible]	[illegible]	8.8	[illegible]	[illegible]41	[illegible]	[illegible].34[c]		[illegible]		[illegible]/0.00	[illegible]/1.8[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
8/	Not Sampled																									
9/	Broken in Transit																									
10/8 1115	[illegible]	69	8.[illegible]	88	519	8.2[a]	2.46[c]		58/2.52		[illegible]	110/1.80		114/3.21			0.1			302[e]	[illegible]	122	[illegible]	[illegible]		
11/1[illegible] 11[illegible]	[illegible]	60	8.0	80	118	7.2[a]	8.4/0.42	3.2/0.26	9.8/0.43		0.0/0.00	33/0.54		18/0.51			[illegible]			69[e]	39	34	7	[illegible]		
12/11 [illegible]45	[illegible]	51	8.9	79	91.3	7.1[a]	0.50[c]		7/0.30		[illegible]	26/0.43		[illegible]			[illegible]			53[e]	38	24	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium [illegible] reported here as [illegible] except as shown.

e Derived from conductivity vs TDS curve.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, [illegible] or United States Public Health Service.

i Mineral analyses made by [illegible]

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

TUOLUMNE RIVER AT TUOLUMNE CITY (STA. 31)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1955																										
1/20 1100	1,[illegible]	[illegible]2	[illegible].2	74	380	7.2[a]	1.80[c]		38 / 1.65		0.0 / 0.00	71 / 1.16		75 / 2.12						216[e]	48	90	32	15	Median [illegible],400.	USGS
2/1[illegible] 1[illegible]15	1,2[illegible]	[illegible]2	[illegible]	[illegible]	[illegible]2	7.3[a]	1.16[c]		29 / 1.26		0.0 / 0.00	48 / 0.79		54 / 1.52			0.0			149[e]	52	58	19	1	Maximum 7,000	
3/11 1[illegible]	1,[illegible]20	60	[illegible].3	73	354	7.3[a]	1.64[c]		34 / 1.48		0.0 / 0.00	73 / 1.20		67 / 1.89			0.0			202[e]	47	82	22	3	Minimum 62	
[illegible]/1[illegible] 1[illegible]55	[illegible]05	69	6.9	76	802	7.8[a]	3.54[c]		89 / 3.87		0.0 / 0.00	144 / 2.36		171 / 4.82			0.1			457[e]	52	177	59	8		
[illegible]/11 1245	385	74	9.7	112	798	8.4[a]	47 / 2.35	13 / 1.07	87 / 3.78	6.8 / 0.17	0.0 / 0.00	142 / 2.33	12 / 0.25	169 / 4.77	3.4 / 0.05	0.1 / 0.01	0.1	40	Al 0.08 PO_4 0.80[d]	448[f]	51	171	55	4		
6/8 1[illegible]15	295	74	5.4	63	890	7.8[a]	3.84[c]		102 / 4.44	7.4 / 0.19	0.0 / 0.00	151 / 2.47		210 / 5.92			0.1			508[e]	52	192	68	10		
7/24 1000	260	76	[illegible].6	113	963	7.9[b]	55 / 2.74	17 / 1.38	117 / 5.09	10 / 0.26	0.0 / 0.00	164 / 2.69	26 / 0.54	206 / 5.81	4.6 / 0.07	0.1 / 0.01	0.0	38		553[f]	54	206	72			
8/	Not Sampled																									
9/2 1355	250	77	6.1	73	991	7.9[a]	58 / 2.89	18 / 1.45	114 / 4.96	9.8 / 0.25	0.0 / 0.00	186 / 3.05	9.0 / 0.19	222 / 6.26	1.4 / 0.02	0.1 / 0.01	0.2	46	Fe 0.15 Cu 0.02 PO_4 0.75 Al 0.04[d]	571[f]	52	217	64	2		
10/9 1100	285	69	7.1	78	1,030	7.4[a]	4.40[c]		127 / 5.52		0.0 / 0.00	181 / 2.97		238 / 6.71			0.2			588[e]	56	220	72	6		
11/14 1500	560	60	[illegible].2	72	415	7.3[a]	25 / 1.25	8.6 / 0.71	49 / 2.13		0.0 / 0.00	74 / 1.21		86 / 2.43			0.1			236[e]	52	98	37	10		
12/16	865	50	9.0	79	288	7.2[a]	1.30[c]		30 / 1.30		0.0 / 0.00	50 / 0.82		62 / 1.75			0.0			164[e]	50	65	24	17		

a Field pH.

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

YUBA RIVER AT MARYSVILLE (STA. 21)

Mineral constituents in parts per million / equivalents per million

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/8 1430	7 [illegible]*	50	11.4	101	127	7.1	1.16[c]		3.5 / 0.15		0.0 / 0.00	62 / 1.02		3.5 / 0.10			0.0			88[e]	12	57	6	[illegible]	Median 6.2	
2/9 0930	[illegible]*	46	11.5	97	93.1	7.3	0.84[c]		2.9 / 0.13		0.0 / 0.00	44 / 0.72		2.[illegible] / 0.[illegible]			0.0			64[e]	13	42	6	10	Maximum 230	
3/10 0900	[illegible]*	48	10.9	94	75.0	7.2	0.62[c]		2.0 / 0.09		0.0 / 0.00	37 / 0.61		2.5 / 0.07			0.0			52[e]	13	31	1	4	Minimum [illegible]	
4/14 1305	[illegible]*	58	10.2	100	69.1	7.3	0.64[c]		1.9 / 0.08		0.0 / 0.00	35 / 0.57		1.5 / 0.04			0.0			48[e]	11	32	3	[illegible]		
5/12 1235	[illegible]*	64	9.7	92	75.7	7.3	9.6 / 0.48	2.2 / 0.18	2.2 / 0.10	0.1 / 0.00	0.0 / 0.00	38 / 0.62	2.9 / 0.06	2.5 / 0.07	0.0 / 0.00	0.1 / 0.01	0.0	14	Fe 0.03 Al 0.06[d] PO_4 0.00	53[f]	13	33	[illegible]	[illegible]		
6/9 1500	[illegible]*	68	9.4	102	[illegible].7	7.3	0.82[c]		2.8 / 0.12		0.0 / 0.00	44 / 0.72		1.8 / 0.05			0.0			63[e]	13	41	5	[illegible]		
7/7 0945	30	71	8.7	98	162	7.5	1.52[c]		5.0 / 0.22		0.0 / 0.00	80 / 1.31		2.0 / 0.06			0.1			112[e]	13	76	10	3		
8/7 1240	24	83	8.5	108	154	7.7	1.40[c]		4.5 / 0.20		0.0 / 0.00	76 / 1.25		1.0 / 0.03			0.0			1[illegible][e]	13	70	8	2		
9/1 1250	[illegible]	80	8.2	101	165	7.7	19 / 0.95	6.4 / 0.53	4.1 / 0.18	1.0 / 0.03	0.0 / 0.00	76 / 1.25	17 / 0.35	2.0 / 0.06	0.4 / 0.01	0.1 / 0.01	0.0	20	Fe 0.[illegible]3 Al [illegible].07[d] PO_4 0.05	107[f]	[illegible]	[illegible]	[illegible]	[illegible]		
10/14 1615	4	71	8.7	98	146	7.7	1.36[c]		4.5 / 0.20		0.0 / 0.00	72 / 1.18		4.5 / 0.13			0.0			[illegible][e]	13	68	[illegible]	4		
11/13 1000	[illegible]	63	9.7	100	204	7.6	1.92[c]		5.9 / 0.26		0.0 / 0.00	96 / 1.57		2.0 / 0.06			0.0			141[e]	12	96	17	4		
12/3 1305	[illegible]	55	10.8	101	169	7.3	1.54[c]		4.9 / 0.21		0.0 / 0.00	81 / 1.33		3.0 / 0.08			0.0			11[illegible][e]	12	77	[illegible]	[illegible]		

* [illegible] Mean

a Field pH

b Laboratory pH

c Sum of [illegible] expressed in epm

d Iron (Fe), [illegible] (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as [illegible] / 0.00 except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g [illegible] determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION (NO. 5)

YUBA RIVER NEAR SMARTVILLE (STA. 21a)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/8 1150	498	47	11.8	100	125	7.2	1.12[c]		3.6 / 0.16		0.0 / 0.00	65 / 1.07		3.5 / 0.10			0.0			89[e]	12	56	3	10	Median 0.62	
2/9 1350	881	46	12.1	101	82.7	7.3	0.76[c]		2.9 / 0.13		0.0 / 0.00	41 / 0.67		2.5 / 0.07			0.0			59[e]	15	38	4	45	Maximum 230.	
3/10 1800	2,200	49	11.4	99	71.5	7.4	0.60[c]		2.5 / 0.11		0.0 / 0.00	34 / 0.56		2.5 / 0.07			0.0			51[e]	15	30	2	0	Minimum 0.06	
4/14 1400	2,30[illegible]	57	10.3	99	65.4	7.3	0.56[c]		1.9 / 0.08		0.0 / 0.00	32 / 0.52		1.2 / 0.03			0.0			47[e]	12	28	2	0		
5/12 1345	1,720	62	9.8	100	69.3	7.3	9.2 / 0.46	1.9 / 0.16	2.0 / 0.09	0.2 / 0.01	0.0 / 0.00	35 / 0.57	1.9 / 0.04	2.7 / 0.08	0.0 / 0.00	0.1 / 0.01	0.0	13	Fe 0.01 Al 0.03[d] PO_4 0.00	48[f]	12	31	2	1		
6/10 0930	776	68	9.3	101	75.9	7.3	0.68[c]		2.5 / 0.11		0.0 / 0.00	38 / 0.62		1.5 / 0.04			0.5			54[e]	14	34	3	8		
7/7 1145	440	70	9.1	101	87.5	7.5	0.78[c]		3.7 / 0.16		0.0 / 0.00	42 / 0.69		1.8 / 0.05			0.0			62[e]	17	39	6	1		
8/7 1135	460	76	9.2	109	105	7.7	0.94[c]		3.3 / 0.14		0.0 / 0.00	58 / 0.95		1.0 / 0.03			0.0			75[e]	13	47	0	2		
9/1 1200	400	76	8.9	105	118	7.6	15 / 0.75	3.6 / 0.30	3.5 / 0.15	0.6 / 0.02	0.0 / 0.00	64 / 1.05	6.0 / 0.12	3.5 / 0.10	0.2 / 0.00	0.0 / 0.00	0.0	16	Al 0.05 PO_4 0.00[d]	80[f]	12	52	0	2		
10/14 1345	100	67	8.7	94	129	7.9	1.26[c]		3.8 / 0.17		0.0 / 0.00	66 / 1.08		3.2 / 0.09			0.1			92[e]	12	63	9	1		
11/2 1430	200	56	10.0	95	130	7.8	1.14[c]		4.6 / 0.20		0.0 / 0.00	66 / 1.08		3.5 / 0.10			0.1			93[e]	15	57	3	1		
12/3 1410	150	52	11.9	108	116	7.3	1.04[c]		3.9 / 0.17		0.0 / 0.00	58 / 0.95		3.2 / 0.09			0.1			83[e]	14	52	4	2		

a Field pH

b Laboratory pH.

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-5

ANALYSES OF SURFACE WATER

LAHONTAN REGION (NO. 6)

[illegible] RIVER, EAST FORK NEAR MARKLEEVILLE [illegible]

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform MPN/ml	Analyzed by
[illegible]																										[illegible]
[illegible]	Not sampled																								[illegible]	
[illegible]	Not sampled																									
[illegible]	[illegible] (est.)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	
[illegible]		41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible] Al [illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe [illegible] Al [illegible] PO_4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible] (est.)	49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	72 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	74 / [illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible] (est.)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible]

TABLE B-5

ANALYSES OF SURFACE WATER

LAHONTAN REGION (NO. 6)

CARSON RIVER, WEST FORK AT WOODFORDS (STA. 115a)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										USGS
1/22 1430	38	38	11.6	87	72.6	7.2	7.4 / 0.37	1.8 / 0.15	3.7 / 0.16	1.2 / 0.03	0.0 / 0.00	41 / 0.67	0.0 / 0.00	1.5 / 0.04	0.2 / 0.00	0.0 / 0.00	0.0	22		58[f]	[illegible]	26	0		Median 0.2	
2/	Not Sampled																								Maximum 230.	
3/10 0810	38	34	11.5	81	66.7	7.3	8.0 / 0.40	1.5 / 0.12	5.4 / 0.23	0.9 / 0.02	0.0 / 0.00	37 / 0.61	3.8 / 0.08	2.0 / 0.06	0.6 / 0.01	0.0 / 0.00	0.0	20		60[f]	30	26	0		Minimum 0.13	
4/14 1430	188	44	10.1	84	49.0	7.3	6.4 / 0.32	2.4 / 0.20	1.9 / 0.08	0.6 / 0.02	0.0 / 0.00	36 / 0.59	0.0 / 0.00	1.8 / 0.05	0.0 / 0.00	0.0 / 0.00	0.0	12		43[f]	15	26	0			
5/15 0800	182	43	10.3	83	45.5	7.3	6.0 / 0.30	0.9 / 0.07	2.0 / 0.09	0.8 / 0.02	0.0 / 0.00	25 / 0.41	2.9 / 0.06	1.0 / 0.03	0.1 / 0.00	0.0 / 0.00	0.0	10	Fe 0.05 Cu 0.03 PO_4 0.00 d	36[f]	19	18	0	10		
6/16 0830	85	60	8.2	82	53.2	7.3	6.4 / 0.32	1.5 / 0.12	2.2 / 0.10	1.1 / 0.03	0.0 / 0.00	28 / 0.46	4.8 / 0.10	0.6 / 0.02	0.2 / 0.00	0.0 / 0.00	0.0	13		44[f]	18	22	0	0.5		
7/9 0750	32	55	8.6	81	63.6	7.3	8.8 / 0.44	1.0 / 0.08	3.1 / 0.13	1.7 / 0.04	0.0 / 0.00	36 / 0.59	1.0 / 0.02	2.5 / 0.07	0.0 / 0.00	0.1 / 0.01	0.0	24		60[f]	19	26	0			
8/14 0900	20	60	8.2	82	80.2	7.3	8.8 / 0.44	2.7 / 0.22	3.6 / 0.16	1.4 / 0.04	0.0 / 0.00	45 / 0.74	6.0 / 0.12	0.5 / 0.01	0.2 / 0.00	0.0 / 0.00	0.0	16		61[f]	19	33	0			
9/3 1000	9.4	54	8.4	78	87.2	7.4	10 / 0.50	2.2 / 0.18	4.9 / 0.21	1.8 / 0.05	0.0 / 0.00	51 / 0.84	1.0 / 0.02	1.0 / 0.03	1.5 / 0.02	0.1 / 0.01	0.1	24	Al 0.07 PO_4 0.00 d	72[f]	22	34	0	1		
10/13 1000	16	45	9.4	78	79.0	7.8	8.8 / 0.44	2.2 / 0.18	4.7 / 0.20	1.4 / 0.04	0.0 / 0.00	46 / 0.75	1.0 / 0.02	2.0 / 0.06	0.2 / 0.00	0.0 / 0.00	0.0	20		65[f]	23	31	0			
11/10	Broken in Transit																									
12/2 0925	12	34	11.5	100	78.1	7.1	0.36[c]		5.0 / 0.22		0.0 / 0.00	42 / 0.69		1.2 / 0.03			0.0			66[e]	27	30	0	2		

a Field pH.

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-5

ANALYSES OF SURFACE WATER

LAHONTAN REGION (NO. 6)

LAKE TAHOE AT BIJOU (STA. 39)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										[illegible]
1/21 1530		44	9.9	81	94.5	7.3	0.70[c]		[illegible] / 0.23		[illegible] / 0.00	[illegible] / 0.82		[illegible] / 0.08						[illegible][e]	[illegible]	[illegible]	[illegible]	5	[illegible]	
[illegible]	Not sampled																								[illegible]	
3/9 1710		[illegible]	9.7	82	93.4	7.7	0.64[c]		5.8 / 0.25		[illegible] / 0.00	43 / 0.70		4.1 / 0.12			0.0			[illegible][e]	[illegible]	[illegible]	0	[illegible]	[illegible]	
4/13 16[illegible]		[illegible]	8.6	81	75.4	7.5	0.54[c]		[illegible] / 0.26		[illegible] / 0.00	[illegible] / 0.69		[illegible] / 0.07			0.0			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
5/14 1630		54	8.6	80	76.1	7.6	8.4 / 0.42	[illegible] / 0.14	5.2 / [illegible]	1.7 / 0.04	[illegible] / 0.00	42 / 0.69	2.9 / [illegible]	1.8 / 0.05	0.0 / 0.00	0.0 / 0.00	0.0	11	PO_4 [illegible] Al [illegible] [d]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
6/15 1430		[illegible]	7.5	77	[illegible]	7.5	0.70[c]		5.6 / [illegible]		[illegible] / 0.00	49 / 0.80		[illegible] / 0.06			0.0			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		61	[illegible]	83	93.5	7.5	0.68[c]		6.9 / 0.30		[illegible] / 0.00	50 / 0.82		1.8 / 0.05			0.0			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		63	[illegible]	83	[illegible]	7.6	0.68[c]		6.5 / 0.28		0.0 / 0.00	51 / [illegible]		[illegible] / 0.06			0.0			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	81	[illegible]	7.6	[illegible]	[illegible] / 0.19	[illegible] / 0.28	1.9 / 0.05	[illegible] / 0.00	51 / 0.84	2.0 / 0.04	3.0 / 0.08	[illegible] / 0.00	[illegible]	[illegible]	[illegible]	Fe [illegible] [illegible] [illegible] Al [illegible] [d]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		58	7.7	[illegible]	[illegible]	7.7	[illegible]		7.2 / 0.31		[illegible] / 0.00	50 / [illegible]		[illegible]			0.1			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		50	7.9	70	95.6	[illegible]	[illegible][c]		6.9 / 0.30		[illegible] / 0.00	[illegible] / 0.85		[illegible] / 0.07			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	1		
[illegible]		48	9.4	[illegible]	96.9	7.4	0.68[c]		[illegible] / 0.31		[illegible] / [illegible]	52 / [illegible]		[illegible] / 0.08			0.1			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c [illegible]

d [illegible] manganese (Mn) [illegible] (Zn) and hexavalent chromium (Cr^{+6}) reported here as [illegible] / 0.00 except as shown

e [illegible]

f [illegible] constituents

g [illegible]

h Annual [illegible] respectively [illegible] from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS); San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH); Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR), as indicated.

TABLE B-4

ANALYSES OF SURFACE WATER

LAHONTAN REGION (NO. 6)

LAKE TAHOE AT TAHOE CITY (STA. 38)

Date and time sampled P.S.T	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO₃)	Bicarbonate (HCO₃)	Sulfate (SO₄)	Chloride (Cl)	Nitrate (NO₃)	Fluoride (F)	Boron (B)	Silica (SiO₂)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as CaCO₃ Total ppm	Hardness as CaCO₃ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																									Median 0.23	USGS
1/8 1500		[illegible]			[illegible]	7.8[b]	— / 0.68[c]		5.9 / 0.26		0.0 / 0.00	50 / 0.82		3.5 / 0.10						63[e]	28	34	0	3	Maximum 230.	
[illegible] 1500		5			[illegible]	7.5[b]	— / 0.66[c]		6.0 / 0.26		0.0 / 0.00	50 / 0.82		4.4 / 0.12			0.0			63[e]	28	33	0	0.8	Minimum 0.045	
[illegible] 1515		[illegible]	9.7	91	92.5	7.7[a]	— / 0.66[c]		5.5 / 0.24		0.0 / 0.00	44 / 0.72		4.8 / 0.14			0.0			62[e]	27	33	0	0.5		
4/1 1500		52	9.2	[illegible]	93.4	7.7[a]	— / 0.64[c]		6.5 / 0.28		0.0 / 0.00	52 / 0.85		2.8 / 0.08			0.0			63[e]	30	32	0	1		
5/14 1400		52	9.1	82	[illegible]	7.6[a]	13 / 0.65	0.4 / 0.03	5.9 / 0.26	1.7 / 0.04	0.0 / 0.00	50 / 0.82	4.8 / 0.10	1.8 / 0.05	0.0 / 0.00	0.0 / 0.00	0.0	11	Al 0.01[d] PO₄ 0.00	[illegible][f]	27	34	0	2		
6/15 1300		58	8.2	80	92.6	7.7[a]	— / 0.66[c]		5.7 / 0.25		0.0 / 0.00	48 / 0.79		2.2 / 0.06			0.0			62[e]	27	33	0	0.2		
7/8 1220		60	8.5	85	93.7	7.7[a]	— / 0.68[c]		6.4 / 0.28		0.0 / 0.00	51 / 0.84		2.5 / 0.07			0.0			63[e]	29	34	0	2		
8/13 1300		[illegible]	9.3	85	93.9	7.7[a]	— / 0.68[c]		6.9 / 0.30		0.0 / 0.00	50 / 0.82		2.0 / 0.06			0.0			63[e]	31	34	0	10		
9/2 1345		65	7.5	79	94.8	7.6[a]	9.2 / 0.46	2.2 / 0.18	6.2 / 0.27	1.9 / 0.05	0.0 / 0.00	51 / 0.84	2.0 / 0.04	2.5 / 0.07	0.1 / 0.00	0.0 / 0.00	0.0	13	Fe 0.01 Al 0.04[i] PO₄ 0.00	62[f]	28	32	0	0.9		
10/12 1410		59	9.4	83	94.4	8.2[a]	— / 0.76[c]		6.8 / 0.30		0.0 / 0.00	51 / 0.84		3.0 / 0.08			0.1			63[e]	28	38	0	1		
11/9 1500		54	8.8	81	93.4	7.9[a]	— / 0.66[c]		6.8 / 0.30		0.0 / 0.00	51 / 0.84		2.5 / 0.07			0.0			63[e]	31	33	0	1		
12/1 1215		49	9.1	99	95.7	7.5[a]	— / 0.68[c]		6.6 / 0.29		0.0 / 0.00	51 / 0.84		2.0 / 0.06			0.1			64[e]	30	34	0	4		

a Field pH.

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves.

f Determined by addition of analyzed constituents.

g Gravimetric determination.

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS);; San Bernardino County Flood Control District (SBCFCD); Metropolitan Water District of Southern California (MWD); Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL); or California Department of Water Resources (DWR); as indicated.

TABLE B-5

ANALYSES OF SURFACE WATER

LAHONTAN REGION (NO. 6)

LAKE TAHOE AT [illegible]

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										[illegible]
[illegible]		44	[illegible]	[illegible]	[illegible]	7.5	— / 0.68[c]		8.0 / [illegible]		[illegible]	50 / [illegible]		[illegible]						[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	Not sampled																								[illegible]	
[illegible]		[illegible]	9.8	[illegible]	[illegible]	[illegible]	— / [illegible].66[c]		[illegible]		[illegible]	49 / [illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	— / [illegible]		[illegible]		[illegible]	53 / [illegible].87		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	91.[illegible]	[illegible]	11 / [illegible]	[illegible]	[illegible]	1.7 / [illegible]	[illegible]	[illegible] / 0.87	2.9 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible] 15 [illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	— / [illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	— / [illegible][c]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		64	[illegible]	[illegible]	[illegible]	[illegible]	— / [illegible]		[illegible]		[illegible]	[illegible]		1.8 / [illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		68	[illegible]	[illegible]	[illegible]	7.[illegible]	[illegible]	[illegible]	[illegible]	1.0 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	— / [illegible]		6.3 / [illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	86	[illegible]	[illegible].8	— / [illegible]		7.4 / [illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	— / [illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible footnotes]

TABLE B-5

ANALYSES OF SURFACE WATER

LAHONTAN REGION (NO. 6)

SUSAN RIVER AT SUSANVILLE (STA. 17b)

Mineral constituents in parts per million / equivalents per million (each mineral constituent is given as ppm / epm)

Date and time sampled P.S.T.	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/	Not Sampled - Snowbound																									
2/5 1300	19.4	37	11.9	88	139	7.3	1.24[c]		4.5 / 0.20		0.0 / 0.00	79 / 1.29		1.5 / 0.04			0.0			105[e]	14	62	[illegible]	3	Median 6.2	
3/6 0815	87	36	11.9	86	108	7.4	0.94[c]		4.0 / 0.17		0.0 / 0.00	62 / 1.02		2.2 / 0.06			0.0			82[e]	15	47	0	4	Maximum 2,400.	
4/9 0945	108	40	11.1	85	100	7.3	0.96[c]		3.0 / 0.13		0.0 / 0.00	56 / 0.92		1.2 / 0.03			0.0			76[e]	12	48	2	15	Minimum 0.06	
5/7 1400	163	56	8.7	82	98.2	7.5	8.8 / 0.44	4.6 / 0.38	3.6 / 0.16	0.7 / 0.02	0.0 / 0.00	56 / 0.92	1.9 / 0.04	1.0 / 0.03	0.4 / 0.01	0.0 / 0.00	0.0	23	Fe 0.09, Al 0.05, PO_4 0.00[d]	72[f]	16	41	0	9		
6/5 1100	21.6	58	7.9	77	122	7.4	1.12[c]		5.0 / 0.22		0.0 / 0.00	77 / 1.26		0.5 / 0.01			0.0			92[e]	16	56	0	4		
7/17 0640	3.9	64	7.3	76	178	7.5	1.62[c]		8.4 / 0.37		0.0 / 0.00	116 / 1.90		1.0 / 0.03			0.0			134[e]	19	81	[illegible]	[illegible]		
8/13 0955	2.8	62	7.9	81	201	7.6	1.86[c]		7.6 / 0.33		0.0 / 0.00	134 / 2.20		1.0 / 0.03			0.0			152[e]	15	93	[illegible]	[illegible]		
9/10 1030	4.3	61	8.3	84	198	7.6	19 / 0.95	10 / 0.83	7.7 / 0.33	4.5 / 0.12	0.0 / 0.00	128 / 2.10	0.4 / 0.01	0.6 / 0.02	0.5 / 0.01	0.0 / 0.00	0.0	42	Fe 0.06, Al 0.07, PO_4 0.10[d]	148[f]	15	89	0	5		
10/15 1200	8.6	48	9.6	82	173	7.6	1.64[c]		6.8 / 0.30		0.0 / 0.00	113 / 1.85		2.8 / 0.08			0.0			131[e]	15	82	0	3		
11/12 1545	9.3	37	11.0	81	171	7.3	1.58[c]		6.7 / 0.29		0.0 / 0.00	110 / 1.80		2.0 / 0.06			0.0			129[e]	16	79	0	1		
12/10 1215	11	33	11.8	95	175	7.3	1.64[c]		6.8 / 0.30		0.0 / 0.00	114 / 1.87		1.0 / 0.03			0.0			132[e]	15	82	0	4		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm.

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service.

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS); United States Department of the Interior, Bureau of Reclamation (USBR); United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP); City of Los Angeles, Department of Public Health (LADPH); City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-5

ANALYSES OF SURFACE WATER

LAHONTAN REGION (NO. 6)

TRUCKEE RIVER NEAR FARAD (STA. [illegible])

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
							Mineral constituents in parts per million / equivalents per million																			
1959																										[illegible]
[illegible]/[illegible]1 [illegible]30	403	38	10.9	8[illegible]	[illegible]1.7	7.3	0.72[c]		3.7 / 0.16		0.[illegible] / 0.00	46 / [illegible].7[illegible]		2.[illegible] / 0.06						[illegible][e]	18	[illegible]	[illegible]	3[illegible]	Median [illegible]	
[illegible]/	Not sampled																									
3/9 [illegible]015	498	[illegible]	1[illegible].9	86	96.[illegible]	7.9	[illegible].73[c]		4.5 / [illegible]		0.[illegible] / 0.[illegible]	5[illegible] / [illegible].8[illegible]		[illegible].4 / [illegible].10			[illegible].0			[illegible][e]	2[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]/13 [illegible]	[illegible]1	[illegible]	9.7	83	[illegible]	[illegible]	0.64[c]		3.5 / [illegible].15		0.[illegible] / 0.00	38 / 0.[illegible]		1.5 / 0.04			0.0			[illegible][e]	17	34	1	3	[illegible]	
[illegible] 1130	[illegible]	5[illegible]	[illegible].3	8[illegible]	54.5	[illegible]	5.8 / [illegible]	[illegible].1 / [illegible].17	[illegible].8 / [illegible].12	[illegible].7 / 0.02	[illegible] / 0.00	[illegible] / 0.[illegible]6	4.8 / [illegible].10	[illegible] / [illegible]	[illegible].4 / 0.01	0.0 / 0.00	0.0	13	Fe 0.[illegible]1 PO_4 0.15 Al 0.21 [d]	[illegible][f]	[illegible]	[illegible]	[illegible]	[illegible]		
6/15 1000	476	60	8.1	81	64.[illegible]	[illegible].4	0.48[c]		[illegible].3 / [illegible].14		0.[illegible] / [illegible]	2[illegible] / 0.48		0.8 / [illegible]			[illegible].0			4[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
7/8 1[illegible]	530	[illegible]3	8.0	83	78.9	7.7	[illegible].64[c]		4.2 / 0.18		0.[illegible] / 0.00	4[illegible] / 0.[illegible]9		1.5 / [illegible].04			0.0			[illegible][e]	[illegible]	34	[illegible]	[illegible]		
8/13 1000	548	6[illegible]	7.8	82	103	7.7	0.72		6.7 / 0.[illegible]9		0.[illegible] / [illegible]	5[illegible] / [illegible]		2.8 / [illegible]			[illegible].0			[illegible][e]	[illegible]	36	[illegible]	1		
9/[illegible] [illegible]015	539	[illegible]	8.3	8[illegible]	1[illegible]	[illegible].5	11 / 0.55	[illegible].1 / 0.17	6.5 / 0.[illegible]8	1.[illegible] / 0.0[illegible]	[illegible] / [illegible].00	57 / [illegible].93	1.0 / 0.0[illegible]	[illegible].8 / [illegible].11	0.1 / 0.00	[illegible].0 / 0.00	[illegible]	1[illegible]	Fe [illegible] Al 0.06 PO_4 [illegible] [d]	[illegible][f]	[illegible]	[illegible]	3	[illegible]		
10/1[illegible] 1[illegible]30	304	53	8.[illegible]	75	97.9	7.9	0.76[c]		6.9 / 0.30		0.[illegible] / 0.00	[illegible] / [illegible].80		5.2 / 0.15			[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	1		
11/9 1[illegible]	[illegible]	[illegible]	[illegible]	88	[illegible]	[illegible]	[illegible].76[c]		8.1 / 0.[illegible]		[illegible] / [illegible].00	[illegible]8 / 0.91		4.8 / [illegible]			0.[illegible]			[illegible][e]	[illegible]	[illegible]	[illegible]	[illegible]		
12/1 1[illegible]5	349	[illegible]	[illegible]	1[illegible]0	106	7.4	[illegible].78[c]		9.4 / 0.41		[illegible] / [illegible].00	[illegible] / [illegible]		3.[illegible] / [illegible].08			[illegible]			81[e]	[illegible]	[illegible]	[illegible]	[illegible]		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn) [illegible] reported here as [illegible] except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, [illegible]

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), [illegible] Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), [illegible] Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-5

ANALYSES OF SURFACE WATER

LAHONTAN REGION (NO. 6)

TRUCKEE RIVER NEAR TRUCKEE (STA. 52)

Mineral constituents in parts per million / equivalents per million (values given as ppm / epm)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N C ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS
1/12 132[illegible]	516	40			66.8	7.1[b]	0.54[c]		3.1 / 0.13		0.0 / 0.00	30 / 0.49		2.0 / 0.06						48[e]	19	27	2	120	Median 5.6	
2/3 153[illegible]		[illegible]			96.9	7.7[b]	0.68[c]		5.6 / 0.24		0.0 / 0.00	51 / 0.84		4.5 / 0.13			0.0			69[e]	26	34	0	1	Maximum 230.	
3/9 143[illegible]	212	46	10.1	84	91.4	7.9[a]	0.68[c]		4.7 / 0.20		0.0 / 0.00	47 / 0.77		3.6 / 0.10			0.0			65[e]	23	34	0	1	Minimum 0.06	
4/1[illegible] 160[illegible]	141	46	9.6	80	73.3	7.5[a]	0.64[c]		3.7 / 0.16		0.0 / 0.00	37 / 0.61		2.0 / 0.06			0.0			52[e]	20	32	2	2		
5/14 1300	170	47	9.8	83	54.9	7.7[a]	6.8 / 0.34	1.2 / 0.10	2.6 / 0.11	0.8 / 0.02	0.0 / 0.00	26 / 0.43	4.8 / 0.10	1.5 / 0.04	0.4 / 0.01	0.0 / 0.00	0.0	13	PO_4 0.20 Al 0.18[d]	44[f]	19	22	1	30		
6/15 0900	84	62	7.5	76	63.9	7.7[a]	0.48[c]		3.1 / 0.13		0.0 / 0.00	32 / 0.52		0.8 / 0.02			0.0			46[e]	21	24	0	0.3		
7/8 1145	65	63	8.7	90	99.5	7.7[a]	0.74[c]		6.4 / 0.28		0.0 / 0.00	54 / 0.89		2.2 / 0.06			0.0			71[e]	27	37	0	1		
8/13 0900	492	65	8.0	85	96.2	7.1[a]	0.72[c]		6.2 / 0.27		0.0 / 0.00	51 / 0.84		1.5 / 0.04			0.0			69[e]	27	36	0	10		
9/2 1115	480	63	7.6	78	97.2	7.4[a]	11 / 0.55	1.3 / 0.11	6.6 / 0.29	1.3 / 0.03	0.0 / 0.00	51 / 0.84	2.0 / 0.04	4.2 / 0.12	0.1 / 0.00	0.0 / 0.00	0.0	13	Fe 0.01 Al 0.06[d] PO_4 0.00	65[f]	30	33	0	0.4		
10/12 1145	277	56	8.2	78	98.5	7.9[a]	0.84[c]		6.9 / 0.30		0.0 / 0.00	50 / 0.82		4.0 / 0.11			0.1			70[e]	26	42	1	1		
11/9 1200	315	42	9.9	78	94	7.8[a]	0.74[c]		7.3 / 0.32		0.0 / 0.00	54 / 0.89		4.2 / 0.12			0.0			67[e]	30	37	0	2		
12/1 1105	310	45	10.1	102	102	7.3[a]	0.70[c]		7.7 / 0.33		0.0 / 0.00	57 / 0.93		2.2 / 0.06			0.0			73[e]	32	35	0	3		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-5

ANALYSES OF SURFACE WATER

LAHONTAN [illegible] (NO. [illegible])

W[illegible]KER RIVER, [illegible] BRIDGEPORT [illegible]

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen % sat	Specific conductance (micromhos at 25°C)	pH[a]	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[a] MPN/ml	Analyzed by
[illegible]																										[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]			[illegible]	
[illegible]	[illegible]																								[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22 / 1.10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 1.88	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible]

TABLE B-5

ANALYSES OF SURFACE WATER

LAHONTAN REGION (NO. 6)

WALKER RIVER, WEST NEAR COLEVILLE (STA. 116)

Date and time sampled PST	Discharge in cfs	Temp in °F	Dissolved oxygen ppm	Dissolved oxygen %Sat	Specific conductance (micromhos at 25°C)	pH[a]	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents	Total dissolved solids in ppm	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Turbidity in ppm	Coliform[h] MPN/ml	Analyzed by[i]
1959																										USGS[g]
1/22 1130	48	33	11.6	81	111	7.3	12 / 0.60	3.4 / 0.28	6.9 / 0.30	1.1 / 0.03	0.0 / 0.00	63 / 1.03	5.8 / 0.12	2.5 / 0.07	0.4 / 0.01	0.0 / 0.00	0.0	15		78[f]	25	44	0		Median [illegible]	
2/	Not Sampled																								Maximum 620	
3/11 1040	85	36	11.1	81	152	7.7	14 / 0.70	3.4 / 0.28	14 / 0.61	1.7 / 0.04	0.0 / 0.00	80 / 1.31	9.6 / 0.20	4.0 / 0.11	0.4 / 0.01	0.1 / 0.01	0.1	16		102[f]	37	49	0		Minimum [illegible]	
4/14 1100	320	42	10.6	94	50.4	7.4	6.0 / 0.30	2.2 / 0.18	1.9 / 0.08	0.3 / 0.01	0.0 / 0.00	34 / 0.56	0.0 / 0.00	1.2 / 0.03	0.0 / 0.00	0.0 / 0.00	0.0	6.8		35[f]	14	24	0			
5/15 1030	634	44	10.2	83	31.3	7.5	4.2 / 0.21	0.5 / 0.04	1.8 / 0.08	0.6 / 0.02	0.0 / 0.00	17 / 0.28	2.9 / 0.06	1.0 / 0.03	0.1 / 0.00	0.0 / 0.00	0.0	5.1	Fe 0.05 / Al 0.08; PO_4 0.00 / Cu 0.04 [d]	24[f]	23	12	0	15		
6/16 1115	47	54	8.8	82	33.4	7.4	4.8 / 0.24	0.2 / 0.02	1.7 / 0.07	0.4 / 0.01	0.0 / 0.00	17 / 0.28	2.9 / 0.06	0.2 / 0.01	0.9 / 0.01	0.0 / 0.00	0.0	6.7		26[f]	21	13	0	1		
7/8 1600	126	67	7.0	76	89.0	7.7	9.2 / 0.46	1.2 / 0.10	8.7 / 0.38	1.6 / 0.04	0.0 / 0.00	44 / 0.72	6.0 / 0.12	4.0 / 0.11	0.0 / 0.00	0.2 / 0.01	0.0	19		72[f]	[illegible]	[illegible]	[illegible]			
8/14 1130	50	65	7.3	77	119	7.5	13 / 0.65	4.3 / 0.35	6.2 / 0.27	0.7 / 0.02	0.0 / 0.00	63 / 1.03	10 / 0.21	0.5 / 0.01	0.2 / 0.00	0.0 / 0.00	0.0	10		76[f]	21	[illegible]	0			
9/3 1145	34	61	8.3	84	137	7.8	17 / 0.85	3.3 / 0.27	7.1 / 0.31	1.2 / 0.03	0.0 / 0.00	74 / 1.21	7.0 / 0.15	2.8 / 0.08	0.1 / 0.00	0.1 / 0.01	0.1	8.1	PO_4 0.1; Al 0.04 [d]	83[f]	21	56	0	2		
10/13 1315	40	52	9.0	81	180	8.2	13 / 0.65	2.1 / 0.17	22 / 0.96	2.1 / 0.05	0.0 / 0.00	87 / 1.43	11 / 0.23	7.0 / 0.20	0.0 / 0.00	0.1 / 0.01	0.3	17		118[f]	52	41	0			
11/10 1130	36	44	10.1	82	110	7.8	0.82[c]		7.0 / 0.30		0.0 / 0.00	63 / 1.03		5.2 / 0.15			0.0			74[e]	27	41	0	3		
12/2 1145	44	35	11.4	104	174	7.3	1.00[c]		19 / 0.83		0.0 / 0.00	88 / 1.44		5.0 / 0.14			0.2			118[e]	45	[illegible]	0	3		

a Field pH

b Laboratory pH

c Sum of calcium and magnesium in epm

d Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and hexavalent chromium (Cr^{+6}), reported here as $\frac{0.0}{0.00}$ except as shown.

e Derived from conductivity vs TDS curves

f Determined by addition of analyzed constituents

g Gravimetric determination

h Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by California Department of Public Health, Division of Laboratories, or United States Public Health Service

i Mineral analyses made by United States Geological Survey, Quality of Water Branch (USGS), United States Department of the Interior, Bureau of Reclamation (USBR), United States Public Health Service (USPHS), San Bernardino County Flood Control District (SBCFCD), Metropolitan Water District of Southern California (MWD), Los Angeles Department of Water and Power (LADWP), City of Los Angeles, Department of Public Health (LADPH), City of Long Beach, Department of Public Health (LBDPH), Terminal Testing Laboratories, Inc. (TTL), or California Department of Water Resources (DWR), as indicated.

TABLE B-6

RADIOASSAY OF SURFACE WATERS

NORTH COASTAL REGION (NO. 1)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
1	Klamath River	Copco	5-17	6.18 ± 3.90	2.05 ± 4.13	0.00 ± 0.50	0.36 ± 0.55
			9-11	7.93 ± 4.70	0.79 ± 4.48	0.90 ± 0.34	0.37 ± 0.30
1a	Shasta River	Yreka	5-6	14.07 ± 4.12	0.96 ± 4.11	0.30 ± 0.50	0.45 ± 0.69
			9-8	0.00 ± 4.56	0.00 ± 4.56	0.00 ± 0.21	0.28 ± 0.34
1b	Scott River	Fort Jones	5-6	1.73 ± 3.73	1.63 ± 4.38	0.10 ± 0.55	0.45 ± 0.65
			9-8	0.00 ± 4.51	0.00 ± 4.46	0.90 ± 0.25	0.00 ± 0.20
1c	Klamath River	Hamburg Reservoir Site	5-13	3.59 ± 4.00	1.74 ± 4.39	0.10 ± 0.55	0.27 ± 0.47
			9-8	8.95 ± 4.71	2.18 ± 4.51	0.00 ± 0.29	0.00 ± 0.29
1d	Butte Creek	MacDoel	5-6	6.18 ± 4.05	13.16 ± 4.06	0.72 ± 0.58	0.45 ± 0.65
			9-7	0.00 ± 4.56	0.00 ± 4.41	0.00 ± 0.34	0.17 ± 0.34
1e	Antelope Creek	Tennant	5-6	3.36 ± 4.00	13.16 ± 4.06	0.41 ± 0.48	0.54 ± 0.64
			9-7	0.00 ± 4.51	0.00 ± 4.56	0.17 ± 0.40	0.00 ± 0.37
2	Klamath River	Somesbar	5-6	1.59 ± 4.10	12.85 ± 3.95	0.10 ± 0.34	0.36 ± 0.50
			9-10	3.54 ± 4.41	0.00 ± 4.31	0.27 ± 0.34	0.09 ± 0.26
2a	Salmon River	Somesbar	5-6	1.59 ± 4.12	17.67 ± 4.12	0.10 ± 0.34	0.00 ± 0.38
			9-10	0.00 ± 4.16	0.14 ± 4.11	0.00 ± 0.26	0.00 ± 0.21
2b	Klamath River	Seiad Valley	5-13	15.61 ± 4.60	19.08 ± 4.17	0.20 ± 0.37	0.45 ± 0.60
			9-8	7.61 ± 4.31	0.00 ± 4.11	0.09 ± 0.15	0.56 ± 0.48
3	Klamath River	Klamath	5-5	15.56 ± 4.55	10.88 ± 3.90	0.10 ± 0.34	0.64 ± 0.65
			9-1	0.00 ± 4.26	0.00 ± 4.26	0.19 ± 0.31	0.65 ± 0.40
3a	Smith River	Crescent City	5-5	3.87 ± 4.00	2.48 ± 4.43	0.20 ± 0.37	0.54 ± 0.64
			9-2	3.46 ± 3.57	2.67 ± 3.57	0.18 ± 0.29	0.09 ± 0.25

TABLE B-6

RADIOASSAY OF SURFACE WATERS

NORTH COASTAL REGION (NO. 1)
(continued)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter: Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
3b	Redwood Creek	Orick	5-6	0.00 ± 5.30	4.51 ± 4.50	0.20 ± 0.31	0.00 ± 0.50
			9-1	0.00 ± 3.81	1.88 ± 3.86	0.00 ± 0.33	0.27 ± 0.44
4	Trinity River	Hoopa	5-6	0.31 ± 5.35	2.73 ± 3.75	0.92 ± 0.55	0.54 ± 0.50
			9-10	1.09 ± 4.06	0.00 ± 4.01	0.00 ± 0.35	0.27 ± 0.43
4a	Trinity River	Lewiston	5-4	1.88 ± 4.00	9.27 ± 4.18	0.00 ± 0.37	0.36 ± 0.50
			9-10	9.05 ± 4.11	3.98 ± 4.01	0.08 ± 0.25	0.26 ± 0.37
4b	Trinity River	Burnt Ranch	5-6	15.56 ± 4.80	5.04 ± 4.13	0.41 ± 0.45	0.09 ± 0.42
			9-10	4.14 ± 4.02	6.02 ± 4.06	0.18 ± 0.42	0.09 ± 0.45
5	Eel River	McCann	5-5	2.08 ± 4.55	7.72 ± 3.66	0.72 ± 0.45	0.00 ± 0.32
			9-8	0.00 ± 3.86	1.58 ± 3.97	0.00 ± 0.36	0.09 ± 0.45
5a	Van Duzen River	Bridgeville	5-7	0.80 ± 3.90	5.35 ± 3.58	0.61 ± 0.66	0.63 ± 0.73
			9-8	6.30 ± 3.86	4.20 ± 3.81	0.00 ± 0.41	0.19 ± 0.49
5b	Outlet Creek	Longvale	5-14	1.08 ± 3.90	3.49 ± 4.60	0.61 ± 0.66	0.63 ± 0.65
			9-15	0.00 ± 3.59	0.00 ± 3.59	0.19 ± 0.38	0.38 ± 0.49
5c	Eel River, Middle Fork	Dos Rios	5-14	4.24 ± 4.00	12.03 ± 4.80	0.10 ± 0.56	0.85 ± 0.64
			9-15	2.23 ± 3.59	0.00 ± 3.50	0.27 ± 0.49	0.09 ± 0.39
5d	Eel River	Dos Rios	5-13	0.00 ± 3.90	0.00 ± 4.40	0.51 ± 0.58	0.63 ± 0.74
			9-15	0.00 ± 3.76	0.21 ± 3.76	0.09 ± 0.25	0.36 ± 0.46
6	Eel River	Scotia	5-5	5.15 ± 4.16	3.94 ± 4.38	0.51 ± 0.56	0.10 ± 0.56
			9-8	7.00 ± 4.60	0.00 ± 4.43	0.17 ± 0.17	0.25 ± 0.37
6a	Mad River	Arcata	5-5	4.61 ± 4.00	8.62 ± 4.37	0.20 ± 0.37	0.42 ± 0.58
			9-9	0.00 ± 4.15	0.00 ± 4.15	0.09 ± 0.24	0.26 ± 0.31

TABLE B-6

RADIOASSAY OF SURFACE WATERS

NORTH COASTAL REGION (NO. 1)
(continued)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
7	Eel River, South Fork	Miranda	5-5	4.84 ± 3.90	6.40 ± 4.29	0.20 ± 0.31	0.21 ± 0.58
			9-8	0.00 ± 4.26	0.00 ± 4.20	0.09 ± 0.39	0.36 ± 0.42
7a	Mattole River	Petrolia	5-7	2.65 ± 4.10	12.91 ± 4.29	0.10 ± 0.34	0.00 ± 0.31
			9-9	0.00 ± 4.20	0.00 ± 4.32	0.27 ± 0.39	0.00 ± 0.46
8a	Russian River	Hopland	5-15	0.00 ± 3.90	6.82 ± 4.30	0.51 ± 0.56	0.21 ± 0.53
			9-3	0.00 ± 4.26	0.00 ± 4.32	0.19 ± 0.31	0.38 ± 0.31
8b	Navarro River	Navarro	5-4	2.16 ± 4.12	6.73 ± 3.97	0.00 ± 0.37	0.42 ± 0.52
			9-7	0.00 ± 4.15	0.00 ± 4.08	0.09 ± 0.16	0.09 ± 0.27
8c	Big River	Mouth	5-4	3.59 ± 4.15	8.82 ± 4.25	0.20 ± 0.34	0.63 ± 0.57
			9-7	0.00 ± 3.90	0.00 ± 3.96	0.17 ± 0.36	0.09 ± 0.15
9	Russian River	Healdsburg	5-11	0.08 ± 4.70	0.93 ± 4.11	0.20 ± 0.31	0.42 ± 0.48
			9-4	0.00 ± 3.90	0.00 ± 3.84	0.09 ± 0.33	0.09 ± 0.38
9a	Gualala River, South Fork	Annapolis	5-4	0.00 ± 4.35	4.37 ± 4.14	0.51 ± 0.51	0.63 ± 0.48
			9-7	0.00 ± 3.77	0.00 ± 3.64	0.00 ± 0.24	0.00 ± 0.28
10	Russian River	Guerneville	5-4	0.00 ± 4.40	4.00 ± 4.12	0.30 ± 0.41	0.21 ± 0.37
			9-7	0.00 ± 4.08	0.00 ± 4.04	0.17 ± 0.20	0.17 ± 0.28
10a	Russian River, East Fork	Potter Valley Powerhouse	5-13	21.11 ± 4.60	2.45 ± 4.05	0.41 ± 0.48	0.31 ± 0.53
			9-3	13.82 ± 3.91	10.63 ± 8.81	0.09 ± 0.25	0.18 ± 0.42
10c	Noyo River	Fort Bragg	5-4	12.05 ± 4.40	0.36 ± 4.08	0.10 ± 0.41	0.10 ± 0.42
			9-7	9.13 ± 4.06	8.15 ± 4.01	0.00 ± 0.29	0.18 ± 0.29

TABLE B-7

RADIOASSAY OF SURFACE WATERS

SAN FRANCISCO BAY REGION (NO. 2)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
71	Arroyo del Valle	Livermore	5-13	5.10 ± 4.15	3.86 ± 4.11	0.52 ± 0.45	0.62 ± 0.61
72	Napa River	St. Helena	5-11	1.88 ± 3.59	4.36 ± 4.40	0.21 ± 0.60	0.29 ± 0.47
73	Alameda Creek	Niles	5-13	2.25 ± 4.00	0.31 ± 4.10	0.41 ± 0.50	0.62 ± 0.73
74	Los Gatos Creek	Los Gatos	5-13	0.60 ± 4.16	3.46 ± 4.21	0.52 ± 0.50	0.62 ± 0.68
			9-8	3.57 ± 3.88	6.92 ± 3.96	0.00 ± 0.44	0.19 ± 0.38
82	Coyote Creek	Madrone	5-12	0.00 ± 4.10	2.95 ± 4.43	0.62 ± 0.48	0.62 ± 0.56
			9-9	8.56 ± 3.71	11.46 ± 3.27	0.19 ± 0.31	0.19 ± 0.44

TABLE B-8

RADIOASSAY OF SURFACE WATERS

CENTRAL COASTAL REGION (NO. 3)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
43	Salinas River	Spreckels	5-12	0.00 ± 4.12	2.39 ± 4.41	0.20 ± 0.53	0.41 ± 0.65
75	San Lorenzo River	Big Trees	5-13	3.11 ± 4.23	5.80 ± 4.45	0.20 ± 0.37	0.20 ± 0.43
			9-8	7.74 ± 3.97	0.00 ± 3.22	0.17 ± 0.29	0.17 ± 0.35
76	Soquel Creek	Soquel	5-13	0.00 ± 4.34	3.38 ± 4.47	0.41 ± 0.53	1.04 ± 0.61
			9-9	5.56 ± 4.06	7.09 ± 4.06	0.00 ± 0.35	0.35 ± 0.35
77	Pajaro River	Chittenden	5-12	5.55 ± 4.90	1.83 ± 4.35	0.00 ± 0.48	0.41 ± 0.48
			9-9	4.00 ± 4.83	9.29 ± 4.93	0.00 ± 0.21	0.18 ± 0.28
83	Carmel River	Carmel	5-12	4.98 ± 4.42	2.11 ± 4.40	0.30 ± 0.45	0.31 ± 0.40
96	Uvas Creek	Morgan Hill	5-12	0.00 ± 4.35	6.65 ± 4.76	0.10 ± 0.40	0.00 ± 0.31
			9-9	4.40 ± 4.78	0.00 ± 4.63	0.90 ± 0.26	0.00 ± 0.30

TABLE B-9

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter: Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
11	Sacramento River	Delta	5-5	0.00 ± 3.82	6.73 ± 3.60	0.58 ± 0.51	0.59 ± 0.40
			9-9	1.06 ± 4.42	2.46 ± 4.42	0.36 ± 0.36	0.18 ± 0.41
11a	Cottonwood Creek	North Fork Cottonwood Creek	5-4	4.27 ± 4.16	3.41 ± 4.13	0.34 ± 0.51	0.82 ± 0.51
			9-2	6.24 ± 4.42	4.92 ± 4.42	0.09 ± 0.25	0.62 ± 0.43
11b	Cottonwood Creek	South Fork Cottonwood Creek	5-4	3.30 ± 4.18	0.98 ± 4.15	0.11 ± 0.40	0.47 ± 0.38
			9-2	2.18 ± 4.37	2.43 ± 4.37	0.00 ± 0.33	0.09 ± 0.25
12	Sacramento River	Keswick	5-5	2.42 ± 4.45	0.70 ± 4.41	0.58 ± 0.36	0.47 ± 0.32
			9-8	8.26 ± 4.42	3.30 ± 5.39	0.00 ± 0.21	0.29 ± 0.39
12b	Cottonwood Creek	Cottonwood	5-4	0.00 ± 4.35	2.87 ± 4.45	0.97 ± 0.70	0.89 ± 0.60
			9-1	0.33 ± 3.91	1.82 ± 3.91	0.00 ± 0.41	0.28 ± 0.52
12c	Sacramento River	Bend	9-1	8.26 ± 3.91	4.81 ± 3.86	0.00 ± 0.36	0.27 ± 0.45
12d	Clear Creek	Igo	5-14	4.44 ± 3.54	6.54 ± 3.91	0.58 ± 0.66	0.20 ± 0.32
			9-1	23.21 ± 4.32	4.62 ± 3.71	0.10 ± 0.35	0.47 ± 0.56
13	Sacramento River	Hamilton City	5-8	1.99 ± 3.52	1.24 ± 4.42	0.09 ± 0.43	0.30 ± 0.36
			9-1	9.85 ± 4.12	8.20 ± 4.07	0.09 ± 0.39	0.27 ± 0.49
13a	Stony Creek	Hamilton City	5-12	0.00 ± 3.50	5.46 ± 4.47	0.48 ± 0.43	0.40 ± 0.45
13b	Sacramento River	Colusa	5-4	3.44 ± 3.48	7.86 ± 4.03	0.68 ± 0.70	0.20 ± 0.45
			9-7	3.08 ± 4.07	2.18 ± 4.07	0.00 ± 0.29	0.00 ± 0.29
13c	Stony Creek	Black Butte Dam Site	5-12	5.21 ± 3.50	12.12 ± 4.19	0.58 ± 0.70	0.40 ± 0.50
			9-2	3.94 ± 4.12	1.54 ± 4.02	0.00 ± 0.29	0.26 ± 0.32
13d	Thomes Creek	Paskenta	5-11	3.50 ± 3.57	9.27 ± 4.41	0.58 ± 0.60	0.60 ± 0.45
			9-2	5.29 ± 3.96	5.29 ± 3.96	0.00 ± 0.15	0.29 ± 0.39

TABLE B-9

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)
(continued)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
13e	Elder Creek	Paskenta	5-11	8.52 ± 3.80	5.41 ± 4.38	0.68 ± 0.62	0.20 ± 0.32
			9-2	0.00 ± 3.45	2.27 ± 3.61	0.18 ± 0.21	0.27 ± 0.33
14	Sacramento River	Knights Landing	5-4	6.86 ± 3.75	3.83 ± 4.10	0.38 ± 0.56	0.40 ± 0.38
			9-7	0.00 ± 3.56	0.00 ± 3.50	0.18 ± 0.21	0.09 ± 0.15
14a	Sacramento Slough	Knights Landing	5-4	0.00 ± 3.83	2.36 ± 4.14	0.48 ± 0.54	0.60 ± 0.45
			9-7	3.64 ± 3.91	2.77 ± 3.86	0.09 ± 0.15	0.37 ± 0.29
15	Sacramento River	Sacramento	5-11	5.50 ± 3.98	12.96 ± 3.99	0.09 ± 0.43	0.30 ± 0.47
			9-7	2.41 ± 3.97	3.64 ± 4.13	0.00 ± 0.30	0.00 ± 0.33
16	Sacramento River	Rio Vista	5-11	2.28 ± 3.93	11.41 ± 4.47	0.09 ± 0.43	0.20 ± 0.50
			9-7	1.56 ± 3.96	1.03 ± 3.96	0.09 ± 0.33	0.27 ± 0.26
16a	Calaveras River	Jenny Lind	5-15	0.00 ± 4.11	7.04 ± 3.45	0.28 ± 0.54	0.40 ± 0.32
17	Pit River	Montgomery Creek	5-5	0.00 ± 4.15	0.28 ± 3.64	0.09 ± 0.48	0.50 ± 0.42
			9-9	8.82 ± 4.07	0.64 ± 6.47	0.09 ± 0.32	0.17 ± 0.32
17a	Pit River	Canby	5-7	4.64 ± 4.30	8.25 ± 3.91	0.19 ± 0.51	0.40 ± 0.50
			9-9	6.72 ± 4.02	0.00 ± 3.82	0.17 ± 0.17	0.09 ± 0.25
17d	Indian Creek	Crescent Mills	5-7	6.49 ± 3.90	2.28 ± 4.00	0.51 ± 0.63	0.00 ± 0.40
			9-10	0.00 ± 4.42	0.70 ± 4.47	0.00 ± 0.35	0.17 ± 0.41
17e	Pit River	Bieber	5-7	6.15 ± 4.35	7.16 ± 3.83	0.00 ± 0.33	0.10 ± 0.42
			9-9	13.33 ± 4.58	2.66 ± 4.27	0.00 ± 0.25	0.09 ± 0.25
18	McCloud River	Shasta Lake	5-5	3.07 ± 3.52	0.50 ± 3.94	0.51 ± 0.56	0.22 ± 0.40
			9-9	2.10 ± 4.07	0.11 ± 4.01	0.00 ± 0.21	0.55 ± 0.52

TABLE B-9

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)
(continued)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
18a	Pit River, South Fork	Likely	5-7 9-10	6.35 ± 3.55 9.32 ± 4.27	0.00 ± 3.91 0.00 ± 4.02	0.51 ± 0.41 0.09 ± 0.34	0.44 ± 0.50 0.27 ± 0.45
19	Feather River	Oroville	5-8 9-10	6.61 ± 3.55 8.06 ± 4.07	1.80 ± 3.98 0.00 ± 3.86	0.20 ± 0.37 0.27 ± 0.54	0.10 ± 0.38 0.09 ± 0.39
20	Feather River	Nicolaus	5-12 9-8	0.23 ± 3.90 6.66 ± 3.71	9.38 ± 4.65 0.00 ± 3.45	0.82 ± 0.70 0.09 ± 0.40	0.10 ± 0.32 0.45 ± 0.53
20a	Feather River	Shanghai Bend	5-12 9-1	5.53 ± 4.12 4.28 ± 3.46	1.18 ± 5.02 0.64 ± 3.35	0.61 ± 0.62 0.17 ± 0.35	0.00 ± 0.21 0.35 ± 0.35
20b	Bear River	Mouth	5-12 9-1	13.05 ± 4.10 15.76 ± 3.81	0.00 ± 4.02 0.86 ± 3.40	0.51 ± 0.58 0.09 ± 0.32	0.10 ± 0.24 0.43 ± 0.48
21	Yuba River	Marysville	5-12 9-1	11.25 ± 4.14 0.00 ± 3.66	0.76 ± 3.72 0.00 ± 3.66	0.20 ± 0.53 0.00 ± 0.30	0.22 ± 0.38 0.72 ± 0.62
21a	Yuba River	Smartville	5-12 9-1	3.62 ± 3.85 0.00 ± 3.87	0.25 ± 3.30 3.80 ± 3.96	0.30 ± 0.56 0.18 ± 0.36	0.77 ± 0.52 0.18 ± 0.30
22	American River	Sacramento	5-13 9-7	0.20 ± 3.75 0.56 ± 3.66	3.41 ± 3.30 1.23 ± 3.66	0.00 ± 0.62 0.00 ± 0.21	0.44 ± 0.40 0.36 ± 0.52
22a	American River	Nimbus Dam	5-13 9-7	3.05 ± 3.64 0.70 ± 3.81	3.66 ± 4.04 0.00 ± 3.66	0.30 ± 0.51 0.09 ± 0.40	0.77 ± 0.52 0.27 ± 0.33
22b	American River, Middle Fork	Auburn	5-14 9-4	2.96 ± 3.64 1.84 ± 3.35	0.28 ± 4.12 0.00 ± 3.76	0.61 ± 0.37 0.00 ± 0.29	0.44 ± 0.45 0.27 ± 0.47
22c	American River, South Fork	Lotus	5-14 9-4	2.42 ± 3.62 1.56 ± 3.96	0.00 ± 4.06 2.71 ± 3.96	0.20 ± 0.46 0.00 ± 0.36	0.22 ± 0.35 0.27 ± 0.39

TABLE B-9

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)
(continued)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
23	Mokelumne River	Woodbridge	5-6	6.41 ± 4.04	0.00 ± 4.08	0.41 ± 0.43	1.10 ± 0.52
			9-3	4.75 ± 4.06	2.46 ± 3.96	0.09 ± 0.35	0.43 ± 0.52
23a	Mokelumne River	Lancha Plana	5-15	9.49 ± 4.15	0.96 ± 4.12	0.20 ± 0.48	0.44 ± 0.45
			9-1	3.38 ± 4.17	0.05 ± 4.06	0.00 ± 0.35	0.26 ± 0.32
24	San Joaquin River	Friant	5-6	15.01 ± 4.25	0.81 ± 4.20	0.51 ± 0.58	0.22 ± 0.45
			9-9	6.85 ± 4.27	2.77 ± 4.17	0.89 ± 0.33	0.27 ± 0.49
25	San Joaquin River	Mendota	5-4	5.18 ± 4.00	0.93 ± 4.25	1.13 ± 0.81	0.21 ± 0.46
			9-10	2.32 ± 4.12	0.00 ± 4.12	0.89 ± 0.44	0.00 ± 0.54
25b	San Joaquin River	Hills Ferry Bridge	5-4	11.79 ± 4.40	6.42 ± 4.17	0.61 ± 0.48	0.86 ± 0.63
			9-10	10.52 ± 4.32	0.64 ± 4.06	0.00 ± 0.37	0.00 ± 0.45
25c	San Joaquin River	Fremont Ford Bridge	9-10	14.21 ± 4.27	7.27 ± 4.06	0.09 ± 0.26	0.18 ± 0.36
26	San Joaquin River	Grayson	5-14	6.86 ± 3.78	5.49 ± 4.14	0.00 ± 0.31	0.00 ± 0.39
			9-2	4.25 ± 3.73	3.58 ± 3.73	0.18 ± 0.36	0.18 ± 0.41
26a	San Joaquin River	Maze Road Bridge	5-14	0.00 ± 3.64	6.96 ± 4.19	0.51 ± 0.46	0.64 ± 0.51
			9-2	5.75 ± 4.08	4.69 ± 4.08	0.27 ± 0.42	0.27 ± 0.44
27	San Joaquin River	Vernalis	5-4	0.00 ± 3.92	4.45 ± 4.14	0.51 ± 0.88	0.53 ± 0.44
			9-10	8.44 ± 4.23	3.61 ± 4.65	0.26 ± 0.43	0.17 ± 0.41
28	San Joaquin River	Antioch	5-12	0.00 ± 3.93	2.48 ± 4.43	0.61 ± 0.88	0.31 ± 0.44
			9-7	7.58 ± 4.23	2.50 ± 4.08	0.00 ± 0.25	0.26 ± 0.43
29	Stanislaus River	Mouth	5-4	2.59 ± 4.08	2.67 ± 4.44	0.30 ± 0.66	0.53 ± 0.53
			9-10	2.52 ± 4.29	0.66 ± 0.42	0.09 ± 0.25	0.44 ± 0.38

TABLE B-9

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)
(continued)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
29a	Stanislaus River	Tulloch Dam	5-6	0.00 ± 3.98	1.24 ± 4.32	0.41 ± 0.53	0.21 ± 0.42
			9-1	5.33 ± 3.93	3.08 ± 3.88	0.00 ± 0.29	0.26 ± 0.43
30	Tuolumne River	Hickman-Waterford Bridge	5-14	1.16 ± 4.03	1.29 ± 4.23	0.41 ± 0.62	0.31 ± 0.42
			9-2	4.05 ± 3.28	5.10 ± 3.18	0.26 ± 0.38	0.00 ± 0.20
31	Tuolumne River	Tuolumne City	5-14	6.14 ± 4.68	0.00 ± 4.13	1.23 ± 0.66	0.42 ± 0.42
			9-2	2.47 ± 3.38	1.97 ± 3.38	0.28 ± 0.26	0.09 ± 0.26
31a	Tuolumne River	Don Pedro Dam	5-14	9.57 ± 4.90	0.00 ± 4.18	0.51 ± 0.46	1.07 ± 0.56
			9-1	6.05 ± 4.09	4.22 ± 4.03	0.00 ± 0.25	0.35 ± 0.50
32	Merced River	Stevinson	5-4	3.79 ± 5.27	0.25 ± 4.19	0.41 ± 0.43	0.53 ± 0.53
			9-10	3.33 ± 4.24	0.00 ± 4.09	0.27 ± 0.43	0.26 ± 0.32
32a	Merced River	Exchequer Dam	5-6	4.04 ± 4.22	3.21 ± 4.19	0.10 ± 0.51	0.21 ± 0.42
			9-1	0.00 ± 3.89	0.36 ± 3.90	0.09 ± 0.32	0.60 ± 0.51
33b	Kings River	Pine Flat Dam	5-1	7.52 ± 4.34	6.65 ± 4.31	0.41 ± 0.63	1.07 ± 0.55
			9-1	4.77 ± 4.00	6.11 ± 4.03	0.00 ± 0.40	0.09 ± 0.38
33c	Kings River	North Fork	5-1	8.29 ± 4.67	2.99 ± 4.21	0.31 ± 0.51	0.42 ± 0.36
			9-1	5.80 ± 4.29	4.00 ± 4.24	0.00 ± 0.36	0.97 ± 0.56
34	Kings River	Peoples Weir	5-5	11.88 ± 4.89	6.42 ± 4.37	0.61 ± 0.63	0.64 ± 0.51
			9-3	0.00 ± 4.34	0.00 ± 4.23	0.17 ± 0.41	0.26 ± 0.48
35	Kaweah River	Three Rivers	5-5	8.37 ± 6.03	6.73 ± 4.38	0.31 ± 0.61	0.20 ± 0.45
			9-2	3.77 ± 4.54	0.97 ± 4.44	0.09 ± 0.27	0.37 ± 0.44
36	Kern River	Bakersfield	5-5	2.05 ± 5.92	2.87 ± 4.35	0.42 ± 0.70	0.40 ± 0.50
			9-3	5.16 ± 4.39	0.00 ± 4.19	0.56 ± 0.58	0.84 ± 0.60

TABLE B-9

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)
(continued)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
36a	Kern River	Isabella Dam	5-6	0.00 ± 3.50	8.11 ± 4.43	0.53 ± 0.61	0.60 ± 0.45
36b	Kern River	Kernville	5-6	0.00 ± 3.55	0.93 ± 4.53	0.53 ± 0.40	0.40 ± 0.38
41	Clear Lake	Lakeport	5-13	0.91 ± 3.70	0.00 ± 4.50	0.10 ± 0.64	0.20 ± 0.45
			9-3	8.91 ± 3.98	6.50 ± 4.09	0.00 ± 0.61	0.26 ± 0.48
42	Cache Creek	Lower Lake	5-13	1.54 ± 3.59	4.08 ± 4.49	0.85 ± 0.84	0.40 ± 0.50
			9-3	2.55 ± 3.53	2.50 ± 3.53	0.17 ± 0.35	0.35 ± 0.46
78	Bear River	Wheatland	5-11	0.00 ± 3.48	0.00 ± 4.21	0.00 ± 0.49	0.00 ± 0.45
79	Cache Creek, North Fork	Lower Lake	5-13	0.00 ± 3.37	4.51 ± 4.11	0.85 ± 0.56	0.20 ± 0.53
			9-3	0.19 ± 3.73	2.55 ± 3.78	0.09 ± 0.25	0.00 ± 0.14
80	Cache Creek	Capay	5-11	2.22 ± 3.30	3.52 ± 4.10	0.21 ± 0.47	0.50 ± 0.60
			9-4	7.58 ± 4.09	7.38 ± 4.04	0.26 ± 0.25	0.35 ± 0.29
81	Putah Creek	Winters	5-11	5.81 ± 3.40	3.80 ± 4.01	0.10 ± 0.44	0.29 ± 0.47
			9-4	0.67 ± 5.17	0.84 ± 4.18	0.00 ± 0.20	0.26 ± 0.38
84	Butte Creek	Chico	9-1	5.94 ± 4.39	0.00 ± 4.23	0.00 ± 0.32	0.00 ± 0.20
85	Big Chico Creek	Chico	9-1	5.25 ± 4.44	0.50 ± 4.34	0.37 ± 0.37	0.18 ± 0.30
85a	Big Chico Creek	Chico	5-8	2.22 ± 3.47	2.56 ± 4.03	0.15 ± 0.36	0.60 ± 0.55
87	Colusa Trough	Colusa	5-4	5.35 ± 3.58	1.88 ± 4.00	0.63 ± 0.60	0.10 ± 0.36
			9-7	3.87 ± 4.49	0.00 ± 4.39	0.28 ± 0.34	0.00 ± 0.21

TABLE B-9

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)
(continued)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
87a	Sacramento River	Butte City	9-8	1.68 ± 4.64	0.00 ± 4.49	0.00 ± 0.20	0.09 ± 0.24
88	Mill Creek	Los Molinos	9-1	7.44 ± 4.64	0.00 ± 4.44	0.34 ± 0.35	0.43 ± 0.32
88a	Cow Creek	Millville	5-15	5.84 ± 3.50	0.00 ± 4.01	0.10 ± 0.68	0.60 ± 0.55
			9-1	0.00 ± 3.98	0.00 ± 3.93	0.09 ± 0.31	0.09 ± 0.14
88b	Battle Creek	Cottonwood	5-15	2.79 ± 3.95	1.41 ± 4.05	0.00 ± 0.55	0.60 ± 0.55
			9-1	14.94 ± 4.39	5.20 ± 4.08	0.17 ± 0.34	0.09 ± 0.37
88c	Antelope Creek	Mouth	5-11	0.31 ± 4.70	0.00 ± 4.01	0.00 ± 0.47	0.40 ± 0.55
			9-1	1.03 ± 4.03	0.00 ± 3.93	0.00 ± 0.20	0.09 ± 0.32
88e	Antelope Creek	Red Bluff	5-11	9.49 ± 4.85	3.49 ± 4.43	0.10 ± 0.15	0.55 ± 0.53
88g	Paynes Creek	Red Bluff	5-15	12.05 ± 5.00	0.28 ± 4.21	0.50 ± 0.36	0.27 ± 0.40
			9-1	0.00 ± 3.98	2.61 ± 4.08	0.09 ± 0.14	0.34 ± 0.35
92	Delta-Mendota Canal	Mendota	5-4	9.12 ± 6.20	1.21 ± 4.00	0.30 ± 0.36	0.27 ± 0.37
			9-10	0.00 ± 3.93	0.00 ± 3.90	0.00 ± 0.18	0.00 ± 0.18
92a	Salt Slough	San Luis Ranch	5-4	4.90 ± 6.08	2.14 ± 4.15	0.40 ± 0.38	0.27 ± 0.26
			9-10	3.37 ± 3.72	0.78 ± 3.64	0.09 ± 0.33	0.27 ± 0.40
93	Delta-Mendota Canal	Tracy	9-7	7.58 ± 4.29	1.61 ± 4.13	0.27 ± 0.25	0.09 ± 0.25
94	Cosumnes River	Michigan Bar	9-1	1.32 ± 4.39	0.59 ± 4.39	0.09 ± 0.33	0.00 ± 0.29
94a	Cosumnes River	McConnell	5-6	3.07 ± 6.00	2.53 ± 4.10	0.40 ± 0.50	0.09 ± 0.40

TABLE B-9

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)
(continued)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
95a	Elder Creek	Gerber	5-12	0.62 ± 5.95	0.70 ± 4.12	0.30 ± 0.47	0.37 ± 0.53
95b	Thomes Creek	Mouth	5-12	2.08 ± 5.30	3.69 ± 3.35	0.30 ± 0.52	0.00 ± 0.48
98	Delta Cross Channel	Walnut Grove	9-7	3.79 ± 4.21	5.42 ± 4.27	0.43 ± 0.37	0.17 ± 0.35
99	Little Potato Slough	Terminous	9-7	6.51 ± 4.39	0.00 ± 4.18	0.17 ± 0.28	0.17 ± 0.28
100	Stockton Ship Channel	Rindge Island	9-11	6.43 ± 4.35	1.68 ± 4.23	0.09 ± 0.39	0.00 ± 0.33
101	San Joaquin River	Garwood Bridge	9-11	2.21 ± 3.77	0.00 ± 3.67	0.27 ± 0.44	0.09 ± 0.39
102	San Joaquin River	Mossdale Bridge	9-11	3.25 ± 3.37	0.00 ± 3.21	0.44 ± 0.33	0.54 ± 0.46
103	Old River	Tracy	9-11	9.21 ± 3.52	6.88 ± 3.18	0.09 ± 0.14	0.71 ± 0.41
103a	Grant Line Canal	Tracy Road Bridge	9-11	6.99 ± 5.15	5.36 ± 4.34	0.26 ± 0.32	0.09 ± 0.32
104	Old River	Clifton Court Ferry	9-8	0.84 ± 4.34	0.06 ± 4.28	0.00 ± 0.52	0.53 ± 0.46
106	Italian Slough	Mouth	9-8	4.52 ± 4.55	0.42 ± 4.49	0.17 ± 0.44	0.34 ± 0.34
107	Indian Slough	Brentwood	9-8	4.13 ± 4.79	0.00 ± 4.59	0.17 ± 0.28	0.34 ± 0.44
108	Old River	Orwood Bridge	9-8	0.00 ± 4.54	7.86 ± 4.80	0.09 ± 0.25	0.61 ± 0.48

TABLE B-9

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)
(continued)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
109	Rock Slough	Knightsen	9-8	3.68 ± 4.52	5.03 ± 4.54	0.09 ± 0.32	0.26 ± 0.32
110	Lindsey Slough	Rio Vista	9-7	0.00 ± 4.32	0.00 ± 4.35	0.18 ± 0.30	0.28 ± 0.40
111a	Bear Creek	Merced	5-6 9-2	12.36 ± 4.00 3.73 ± 4.23	6.39 ± 3.45 0.56 ± 4.13	0.20 ± 0.50 0.09 ± 0.40	0.37 ± 0.57 0.18 ± 0.43
112	Old River	Mandeville Island	9-11	10.95 ± 4.53	0.00 ± 4.18	0.26 ± 0.48	0.09 ± 0.38
113	Fresno River	Daulton	5-6	9.49 ± 3.90	8.45 ± 3.45	0.70 ± 0.65	0.55 ± 0.53
114	Chowchilla River	Buchanan Dam Site	5-6	2.90 ± 3.85	11.55 ± 3.50	0.40 ± 0.55	0.64 ± 0.55

TABLE B-10

RADIOASSAY OF SURFACE WATERS

LAHONTAN REGION (NO. 6)

Sta. No.	Stream	Near	Date 1959	Micro-micro curies per liter			
				Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
17b	Susan River	Susanville	5-7	4.16 ± 3.50	4.03 ± 3.00	0.30 ± 0.52	0.55 ± 0.53
			9-10	7.64 ± 4.63	0.00 ± 4.41	0.26 ± 0.32	0.00 ± 0.53
37	Lake Tahoe	Tahoe Vista	5-14	3.64 ± 3.57	7.55 ± 3.25	0.70 ± 0.58	0.18 ± 0.37
			9-2	1.07 ± 4.04	2.81 ± 4.09	0.00 ± 0.43	0.33 ± 0.51
38	Lake Tahoe	Tahoe City	5-14	5.10 ± 3.52	3.55 ± 3.55	0.10 ± 0.38	0.37 ± 0.55
			9-2	5.56 ± 3.87	2.67 ± 3.78	0.00 ± 0.27	0.00 ± 0.43
39	Lake Tahoe	Bijou	5-14	7.23 ± 3.60	3.77 ± 4.45	0.10 ± 0.42	0.37 ± 0.56
			9-2	2.64 ± 3.23	0.00 ± 3.15	0.00 ± 0.42	0.51 ± 0.56
52	Truckee River	Truckee	5-14	9.49 ± 4.15	8.54 ± 3.72	0.30 ± 0.36	0.55 ± 0.56
			9-2	1.03 ± 2.90	1.26 ± 2.90	0.26 ± 0.42	0.17 ± 0.44
53	Truckee River	Farad	5-14	2.76 ± 4.03	7.78 ± 3.90	0.30 ± 0.36	0.27 ± 0.40
			9-2	6.37 ± 3.47	3.09 ± 3.37	0.00 ± 0.25	0.44 ± 0.44
115	Carson River, East Fork	Markleeville	9-3	0.84 ± 3.72	2.81 ± 3.78	0.00 ± 0.40	0.43 ± 0.55
115a	Carson River, West Fork	Woodfords	5-15	4.16 ± 3.50	0.96 ± 3.25	0.00 ± 0.31	0.54 ± 0.42
			9-3	8.79 ± 3.79	6.04 ± 3.66	0.33 ± 0.43	0.00 ± 0.16
116	Walker River, West	Coleville	5-15	4.16 ± 3.55	6.54 ± 3.44	0.20 ± 0.22	0.26 ± 0.33
			9-3	0.64 ± 3.45	0.00 ± 3.42	0.17 ± 0.27	0.08 ± 0.36
116a	Walker River, East	Bridgeport	9-3	0.36 ± 3.83	0.00 ± 3.82	0.33 ± 0.43	0.33 ± 0.51

TABLE B-11

RADIOASSAY OF SNOW

CENTRAL VALLEY REGION (NO. 5)

Stream basin	Snow survey course	Date 1959	Gross radioactivity in micro-micro curies per liter
American River	Phillips	1-30	980 ± 15
		2-27	240 ± 8
		3-31	1080 ± 15
Feather River	Harkness Flat	2-28	890 ± 15
		3-30	625 ± 10
		4-29	570 ± 10
	Lower Lake Helen	1-29	900 ± 15
		2-26	410 ± 9
		4-1	900 ± 15
		4-30	290 ± 9
Kings River	Sand Meadow	2-2	700 ± 10
		2-26	1270 ± 15
		3-27	940 ± 15
		4-29[1]	1090 ± 15
Mokelumne River	Lumberyard Ranger Station	2-3	1530 ± 15
		3-2	470 ± 10
		4-3	580 ± 10
San Joaquin River	Kaiser Pass Meadow	2-3	640 ± 10
		2-26	1020 ± 15
		3-26	490 ± 10
		4-30	180 ± 7
Tuolumne River	Gin Flat	1-29	1390 ± 45
		2-25	1010 ± 15
		3-30	570 ± 15
		4-23	1440 ± 25
	Horse Camp Lodge	1-30	470 ± 10
		2-27	210 ± 8
		3-27	710 ± 10

[1] Collected from Dodson's Meadow - Sand Meadow under water of Courtright Reservoir.

TABLE B-11

RADIOASSAY OF SNOW

LAHONTAN REGION (NO. 6)

Stream basin	Snow survey course	Date 1959	Gross radioactivity in micro-micro curies per liter
Owens River	Upper Minarettes	2-6	720 ± 10
		3-4	640 ± 10
		3-31	640 ± 10
		5-1	1180 ± 15

7-61 750 44460